

# FLIGHT

The  
AIRCRAFT  
ENGINEER  
&  
AIRSHIPS

First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 600 (No. 26, Vol. XII.)

JUNE 24, 1920

Weekly, Price 6d.  
Post Free, 7d.

## Flight

The Aircraft Engineer and Airships

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C. 2  
Telegrams: Truditur, Westcent, London. Telephone: Gerrard 1828

Annual Subscription Rates, Post Free

United Kingdom .. 28s. 2d. Abroad.. .. 33s. 6d.\*

These rates are subject to any alteration found necessary under abnormal conditions

\* European subscriptions must be remitted in British currency

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### DIARY OF FORTHCOMING EVENTS.

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:

July 3	...	Air Tournament at London Aerodrome, Hendon, in Aid of R.A.F. Memorial Fund
July 9 to 20	...	S.B.A.C. International Aero Exhibition at Olympia
July 17 to 31	...	Seaplane Contests at Antwerp
July 24	...	Aerial Derby at Hendon
Aug. 3	...	Air Ministry Competition (Large and Small Type Aeroplanes)
Aug. 28 & 29	...	Schneider International Race, Venice
Sept. 1	...	Air Ministry Competition (Seaplanes)
Sept.	...	International aviation week (with competitions) at Brescia, Italy
Sept. 8, 9 and 10	...	Fédération Aéronautique Internationale Conference, Geneva
Sept. 27 to Oct. 2	...	Gordon-Bennett Aviation Cup, France
Oct. 23	...	Gordon-Bennett Balloon Race, Indianapolis, U.S.A.

## EDITORIAL COMMENT



### The Future of War

IN an article, which will doubtless appeal to the military pedant as fantastic, a well-known Belgian writer on aeronautics recently discussed at some length the place which aviation will hold in the next great war. Others have done this, but not quite in the same way, for this writer has gone to the trouble of reconstructing the position as it was when the Germans were making their first attacks on the Meuse and the British Expeditionary Force was landing at the Channel ports. Obviously, at the opening stage of the War, the true strategy of the Germans was to have prevented the liaison of the British with the French and Belgians operating towards the East.

The writer predicates that by the time another great upheaval convulses Europe the aeroplane will have developed a carrying capacity far beyond anything we know now, and that it will be able to carry at least 50 persons. That is certainly not at all in conflict with the lessons carried by past developments, and we may, therefore, accept it as extremely probable. He points out that one of the principal developments of the late War was in motor transport. At the beginning of hostilities France owned 36,000 vehicles suitable for the conveyance or service of troops. Four years later this immense fleet had been increased four times, and in November of 1918 motor transport carried 950,000 men. These are remarkable figures, indeed, but they fall far short of what it will be possible to achieve should the writer's estimates regarding the development of aerial transport turn out to rest on a solid basis of fact. He assumes that for the purposes of the next war Germany would have at her disposal a fleet of 10,000 giant aeroplanes, each with a capacity of 50 men, capable of a speed of 140 kilometres an hour. In order to anticipate and frustrate such a movement as that by which the British reinforced their Allies in August, 1914, it is suggested that these machines would be concentrated at Essen in the guise of civil aircraft. Essen is 200 kilometres from Zeeland, and it is pointed out that 10,000 x 50 men = 500,000. These half million men could be conveyed, allowing twice the actual potential time of flight, from Essen, to

Zeeland in six hours, an operation which could be carried out by night. Obviously such a movement, if successfully completed, would very effectively frustrate the achievement of such an operation as that carried out by the British in the opening days of the late War. The point is raised whether or not such an army could receive the necessary supplies, since the ordinary lines of communication would not be open. The answer is that it could be supplied by aeroplanes, while bombing machines would take the place of artillery.

The whole discussion is necessarily academic, not to say highly controversial in so far as the possibility of carrying out such an operation successfully is concerned. There are all sorts of reasons why it might succeed, and as many which point to the impracticability of carrying it to an issue. These, however, are quite beside the point, since we prefer to take the article in question as a species of parable, intended to point out how much more favourably situated for aggressive action any Power will be which has had the prescience beforehand to develop civil aviation, and thus to build up an immense reserve of machines and pilots which will become available for instant action when "The Day" shall arrive. We imagine that nobody regards seriously the nonsense which was talked until quite lately about there being no more war. The doctrine was one to which FLIGHT was never able to subscribe, since we realise, as must everyone but the incorrigible pacifist, that so long as human nature and human institutions remain what they are, so long will the ultimate resort for the settlement of disputes be found in force of arms. If, as we must, we accept this as a cardinal article of faith, it follows that we must secure ourselves against aggression by being prepared to resist it. Now, whether we accept the deductions of the Belgian authority or not does not matter, since we cannot ignore the patent fact that the aeroplane places in the hands of the evilly disposed State a most potent weapon of offence—not only potent from the actually destructive point of view, but from that of the appalling suddenness with which it enables a blow to be struck. We have before pointed out that nothing but the sure and certain knowledge that such a sudden blow will inevitably recoil with fourfold violence upon the aggressor will deter such a Power as Germany from attempting to deal it. The moral is too obvious to need emphasising, and we trust it will not be lost upon those who direct our military policy.

#### The Officers' Association

Among the many societies and associations formed, to keep together and to afford mutual assistance to those who have served in the War, and who may have suffered in mind, body or estate as a consequence, none appeals to us with greater force than the Officers' Association, of which the Presidents are Lord Beatty, Lord Haig and Sir Hugh Trenchard. The Association was formed at a meeting at the Mansion House in January of this year, and at its creation Lord Beatty and Lord Haig stated that while the Association will, to begin with, deal only with those who have held His Majesty's commission, it will no less have at heart the welfare of other ranks, and that it is hoped hereafter to bring these within the scope of its operations. At the moment we can pass over these ultimate hopes, and deal only with the urgent necessity which exists for some such

organisation to help in the case of those who served in the commissioned ranks of the three Services.

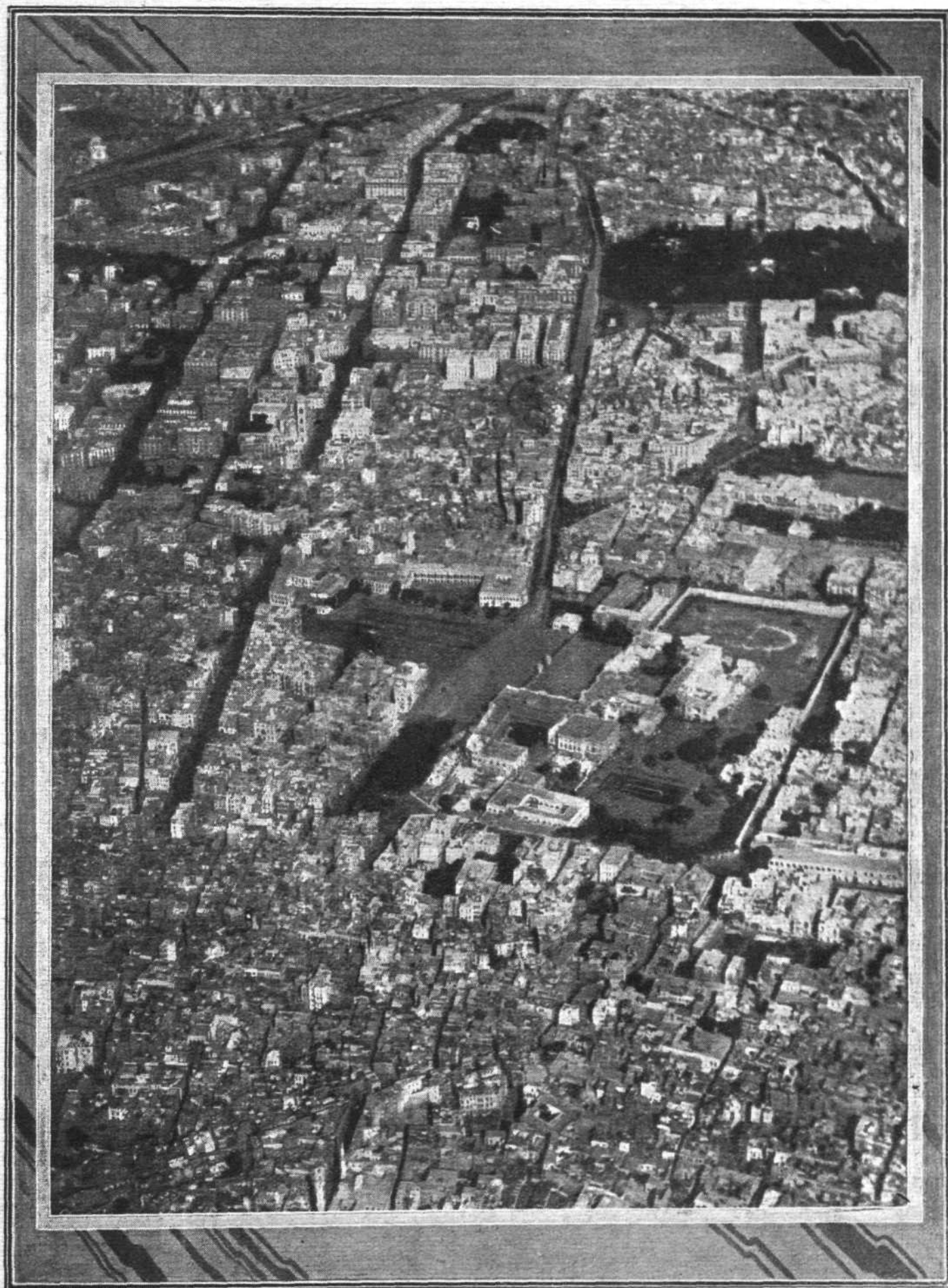
In a letter conveying a personal appeal, Lord Haig says that there are today 33,000 disabled officers, 10,000 officers' widows, 8,000 officers' orphans, 15,000 children of disabled officers, and 25,000 unemployed officers, who are still paying the penalty of the War. There can be no more worthy appeal than that made by the gallant Field-Marshal to the whole community to come forward and assist the Association in whatever way is possible to the individual. Every officer who can afford the purely nominal annual subscription of half-a-guinea should make a point of becoming a member. The business community can help by employing as many ex-officers as possible. The individual, who realises what he owes to those who fought for him, can do his share toward carrying the financial burden which the Association is assuming in its attempt to lighten the lot of the many thousands who require assistance. Let those who would lightly dismiss the appeal made by Lord Haig remember that it is made on behalf of the men who carried the responsibility of the War, as well as sharing cheerfully in its risks. They are those who, because of their qualities of leadership, demonstrated in the hardest of all schools, proved themselves fit and worthy to carry their responsibility. Now that some are broken and unfit to fend for themselves, it is for the country in whose service they have suffered to make up so much to them as is possible. Many thousands have given all they had to give—life itself—and have left behind them those from whom they parted at their country's call, assured that that country would never prove false to the charge they left. Now that the supreme sacrifice has been cheerfully rendered, it is for the country to redeem the charge. Of equal importance is it that those who answered the call of patriotism and who have returned safely to the homeland should not want for the employment that is their due. We have enough faith in the country to believe that it is only too anxious and willing to do all in its power to assuage the lot of those who have suffered as a consequence of their devotion. The task is one of such dimensions that it requires a great deal of organisation. Detached effort, however well meant, cannot do it, and it is here that the Officers' Association steps in to provide that essential. We commend its efforts to the consideration of all who have the slightest spark of gratitude for the sacrifices made by the officers of the Royal Navy, the Army, and the Royal Air Force during years of bitter war in order that this Empire may be and remain what it is. For the information of those whom it may interest, the address of the Association is 48, Grosvenor Square, W.

#### Aerial Mails in America

While the British postal authorities are apparently unable to make up their minds about the future of aerial carriage of mails, the Americans are going ahead fast. The second anniversary of the establishment of the Air Mail Service has just been celebrated, and has afforded an opportunity for the announcement of some interesting figures relating to its success. Three principal routes are being operated—from New York to Washington, New York to Chicago, and Chicago to Omaha—while a new service is to be inaugurated from Chicago to St. Louis. Further, it is announced that a survey of the proposed route to San Francisco is being made, and that a through service from the



## The Camera and the 'Plane



IN EGYPT : Abdin Palace and Square, Cairo, where the recent disturbances took place, as seen from above



Atlantic to the Pacific will be started shortly after the opening of the new fiscal year, as soon as the required aerodromes and their equipment can be completed. Apart from State services, next month will see the opening of an extensive series of commercial routes, on which British-built machines will operate, from a centre in New Jersey. The proposed routes are between that place and New York, Cleveland, Chicago and Minneapolis. A firm has also been formed in Kansas City to operate an airship service.

With regard to the State mail services, it is stated that the aerial post carried during the past year over half-a-million pounds weight of mail matter over an almost corresponding mileage, and that the service proved 87 per cent. efficient. The route between Washington and New York was used every day, with an efficiency of over 90 per cent., and, in spite of an exceptionally severe winter, the aeroplane post was an average of 14 hours ahead of the train service. In the matter of cost, the same service has resulted in a saving over the train-carried mails of about 50,000 dollars. The New York-Chicago service has saved nearly twice that sum. Not the least remarkable feature is that these services have been carried out by military machines, which are not properly adapted for commercial use. Obviously, the saving which would be effected by the use of properly designed commercial aircraft would be even greater.

Admitting that distances are greater and therefore more in favour of aircraft in America than they are in this country, it still remains a mystery why, in face of such figures as those we have quoted, and which must be known to the Post Office, there should still remain the apparent doubt there is in the minds of the officials of that Department as to the possibilities of the aerial post. The statistics of the London-Paris service are a striking confirmation of the results achieved in America, and the two taken together would, we should have thought, have given heart of grace to even the most conservative of them all. We suppose that some day the Post Office will awake to the facts and do something which is worth while. But the awakening seems a long time coming.

#### The Schneider Cup

The race for the Jacques Schneider Cup is to take place at Venice on August 28 and 29. We trust there will be an adequate entry of British machines, the more so as the Royal Aero Club is offering substantial inducement to British competitors in the shape of cash prizes of £250, £150 and £100 for the first, second and third British entrants to complete the course irrespective of their placing in the competition for the Cup itself. It may be agreed that in the present indeterminate position of the industry, when the Government cannot make up its mind whether or not it has an aerial policy, there is, on the face of things, scant encouragement for firms engaged in seaplane or flying-boat building to spend money and trouble in the evolution of craft best suitable for bringing the Cup back to England. It must be remembered, however, that things will not always remain as they are now. There is a growing mass of public opinion interested in aviation and air-power which will, before very long, force even this Government to say what it intends to do towards keeping that substantial margin of air-power with which we ended the War. No small part of that margin was in craft designed to operate over the sea. In numbers

and in efficiency British designs held the field. Even now, after nearly two years of discouragement, it is as true to say that the British flying boat has no superior. Not only is it essential, therefore, that we should make a good showing in an international event such as the competition for the Schneider Cup from the point of view of demonstrating that this is so, but because as soon as the world has really settled down to realise what air-power means, the maritime nations must turn their attention to the types of machines concerned. There will be orders to be placed for seaplanes and for flying boats, and it follows as a matter of course that the country which produces the demonstrably best types will secure them. Nor is it desirable that from the purely sporting standpoint we should make any but the best possible showing. Britain is parting with too many sporting championships to be pleasant, and we do not want to see any more going away. We know all the explanations for this fact, and they may be all they are said to be. The fact nevertheless remains that this country is rapidly receding to second or third place among the sporting nations, judged from the championship point of view. Let us see if we cannot win back this one.

#### The Aerial Derby

This year's Aerial Derby, which is to take place on the 24th of next month, is to be flown over a course substantially the same as that of last year, viz., a circuit of London approximately 200 miles round. The conditions and regulations also are much the same as in 1919, so there is no need to traverse them, but it may be useful to point out that we understand that the Air Ministry will raise no objection to service pilots taking part in the race this year. This offers a good opportunity for service pilots to demonstrate their skill, and doubtless several manufacturers would be willing to nominate a service pilot for one of their machines. There is also the possibility of such pilots entering privately and hiring a machine for the race, and in this connection it may be pointed out it is not necessary to be on a very speedy machine, for, apart from the prize for the fastest time, there are three prizes for the handicap.

We regard this event as being quite the most effective of the year, judged from the point of view of the good of the movement at large. No other event secures the "gallery" that falls to the Aerial Derby. It is not the slightest exaggeration to say that millions of people see the race, talk about it for days before it is flown, and discuss it for days after it has become a memory. There can be no finer propaganda than such a race, and, at a time when the movement requires all the good publicity it can get, such events as the Aerial Derby are exceedingly welcome. They familiarise the man in the street with the whys and wherefores of aviation as nothing else can, and the only regret that can possibly be felt in connection with them is that there are not more. Incidentally, there could be more if some of the wealthy provincial journals would do as much for aviation in their own districts as the *Daily Mail* has in this direction for London. An aerial race round a circuit marked by Manchester, Liverpool, Leeds and Sheffield, for instance, would be both interesting and of very great value to aviation. It might not be as spectacular as the Aerial Derby, but it would be very well worth while.

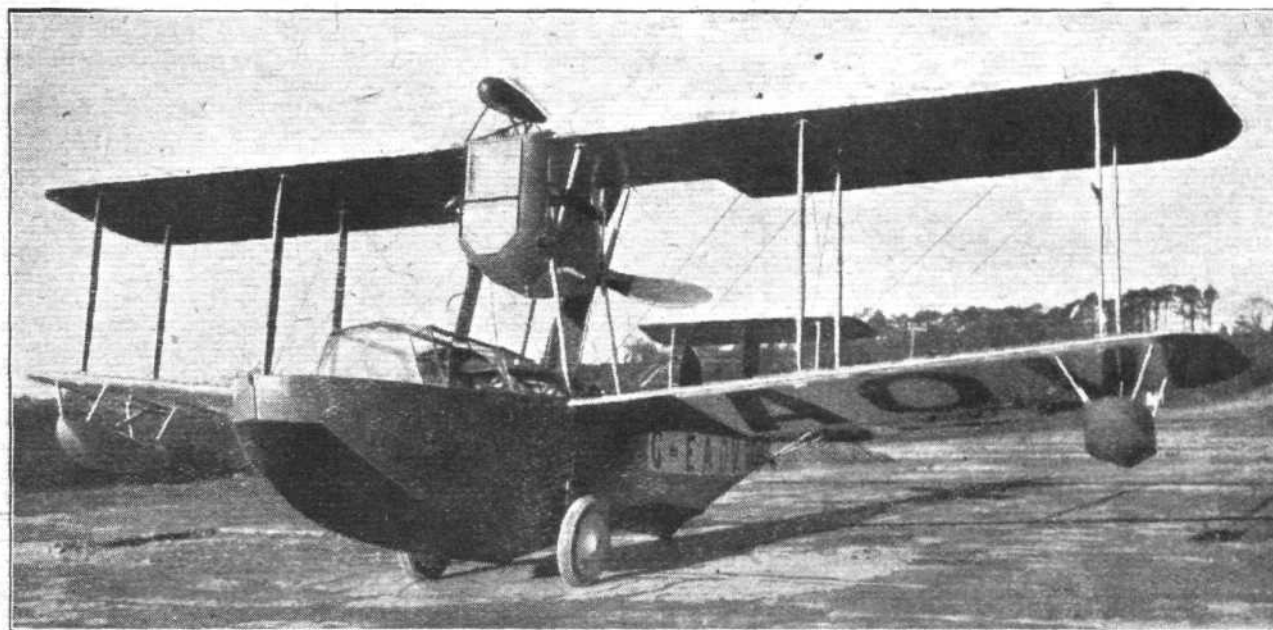


## THE VICKERS "VIKING"

AN extremely interesting film was shown at Vickers House last week in which their very clever sea and land flying boat was convincingly seen. This craft which would, except for unforeseen circumstances, have been staged at the Paris Show, will be on view at Olympia. The neat way in which the craft came down the launching stage on her own wheels and took the water with the ease of a duck and within a moment or two had tucked away by her side her land impedimenta and rose gracefully from the sea, climbing well and quickly getting fine speed, was a revelation. Later she was seen emerging out of the distance, gradually descending to the sea again, and continuing to taxi towards the shore. As the edge of the sands was approached, one began to

hull. The top deck of the hull is perfectly flat and horizontal, whilst the sides are also flat and vertical, giving a simplicity of form that should make for ease of construction.

The pilot's and passengers' cockpits are enclosed by a roomy "glass-house" cabin, more or less streamlined. If required, three seats may be removed, giving 76 cubic ft. of space for freight or mails. The landing gear (*terra firma*) consists of two self-contained units, each comprising a wheel mounted on a shock-absorbing arm, which is pivoted at its upper end to the hull-side at a point some distance above the first step. When desired each wheel unit may be swung up alongside the hull by means of a crank mounted on the wheel arm, and operated through rods from the



Three-quarter front view of the Vickers "Viking" amphibious flying-boat

wonder when she was going to come to and turn in the water. But nearer and nearer she continued straight to the spectators on the sands, and it was then realised, as she glided gently out of the sea that she had again her land gear in operation enabling her to run up the sands without the slightest effort or assistance. Yes, a very convincing performance.

The Vickers "Viking" is a five-seater amphibious biplane of the flying-boat type, capable of starting from and alighting on either land or water. The hull is of the two-step type of rather unusual pattern, as may be seen from the accompanying illustration. The planing surfaces, from stem to stern, are of V-form, the curves of the keel and chine lines being convex as far as the first step, but between the latter and the second step—which is situated some distance aft—they are concave, and from the second step the V bottom slopes upwards and tapers to the vertical knife-edge stern of the

cabin. A tail skid is mounted on the keel at the second step.

The engine, a 360 h.p. Rolls-Royce, Eagle VIII, is mounted in a streamline housing above the hull immediately below the top plane, and drives a 4-bladed pusher screw. The main planes are of equal span and chord, without stagger or sweep-back, but with lower plane set at a comparatively large dihedral angle. A biplane tail is fitted having two balanced rudders, in between which is a vertical fin. Wing-tip floats are also fitted.

The general characteristics of the Vickers "Viking" are:—

Span .. .. .	46 ft. 0 ins.
Chord .. .. .	6 ft. 0 ins.
Gap .. .. .	7 ft. 0 ins.
Overall length .. .. .	32 ft. 0 ins.
Overall height .. .. .	13 ft. 0 ins.
Weight fully laden .. .. .	4,545 lbs.

### French Air Attachés

ONE of the clauses of a bill for safeguarding the French national interests in connection with aerial services has been drafted under the direction of the Under-Secretary of State for Aerial Transport, provides for the appointment in the more important foreign capitals of an air attaché. This official would be charged with the duty of collecting information with regard to the progress of aeronautics in the country to which he was appointed, and would keep the French Air Ministry informed of all developments.

### List of Licensed Pilots

THE Air Ministry has just issued a list of civil pilots' licences granted and which were still in force on May 31. The list, which specifies the number of licence, name of pilot, class, types of machines qualified on, date of expiration of licence, and the age of pilot in the case of those licensed to carry passengers, can be consulted at the Department of Civil Aviation, Air Ministry, Kingsway.

### Aircraft Distress Signals

MARINERS and others are notified by the Admiralty that when any aircraft is in distress and requires assistance the following will be the signals displayed by her, either together

or separately:—(1) The international signal "S.O.S." by means of visual or wireless telegraphy; (2) the international code signal of distress, indicated by N.C.; (3) the distant signal, consisting of a square flag having above or below it a ball, or anything resembling a ball; (4) a continuous sounding with any sound apparatus; (5) a signal consisting of a succession of white Very's lights, fired at short intervals.

### Air Fight at Torchlight Tattoo

BEFORE the War the Aldershot Torchlight Tattoo was an imposing spectacle, but the one held last week surpassed any which had preceded it. Not only was it a bigger affair than ever before, but the R.A.F. took a most active part in the proceedings. In a pyramid of searchlights, machines from the Night Bombing Squadron at Andover reproduced an aerial combat, complete with the rattle of machine guns. Afterwards illuminated machines went up and gave a clever display of night-flying, fireworks adding to the effect. The Tattoo was given on three nights, and, judging by the great crowds which were attracted, the various military charities should benefit substantially. Squadron-Leader C. H. B. Blount, M.C., R.A.F., who was responsible for the aircraft display, is to be congratulated on the success of this part of the Tattoo.

# AIR MINISTRY NOTICES

## Aerodromes and Landing Grounds

THE Air Ministry announces that the following Notice to Airmen (No. 67) has been issued amending the consolidated list of aerodromes issued on April 22, 1920.

### LIST C.—Stations temporarily retained for Service purposes

The following aerodrome has been deleted :—

Aerodrome	Nearest rly. station	Nearest large town
Weston on the Green	Bicester	Bicester

### LIST D2.—Licensed Civil Aerodromes

The following aerodromes have been deleted :—

Aerodrome	Nearest rly. station	Nearest large town
Bidston	Bidston	Birkenhead
Cheltenham	Cheltenham	Cheltenham
Hardwick	Lords Bridge	Cambridge

### LIST D3.—Aerodrome licensed as "suitable for Avro 504K and similar types only"

Except in very few cases accommodation does not exist. The licenses have been issued for limited periods only.

The following aerodromes are published as additions :—

Aerodrome	Nearest rly. station	Nearest large town
Bidston	Bidston	Birkenhead
North Stoke, Bath	Bath	Bath
Foreshore, Ardrossan	Ardrossan	Ardrossan

The following aerodromes have been deleted :—

Priory Heath, Ipswich	Ipswich	Ipswich
Chapel Hill, Margate	Margate	Margate
Town Moor, Conway	Conway	Llandudno

## Summer Time in Portugal

It is notified that Summer Time has been introduced in Portugal. An advance of one hour took place on March 1, and is to remain in operation until October 31.—(Notice to Airmen No. 68.)

## Landing Lights at Bordeaux Aerodrome

It is notified for information that the landing lights at Bordeaux (Teynac) Aerodrome, as described in Notice to Airmen No. 28 of March 25, 1920, are only exhibited when aircraft are expected.

Pilots flying direct to Bordeaux from this country, and expecting to arrive there at night, should inform the Air Ministry of their anticipated hour of arrival. The Air Ministry will then take steps to warn the Commandant at Bordeaux Aerodrome. Should the journey, however, be broken in France, pilots should communicate direct with the Commandant whose telegraphic address is: Commandant, Aero Merignac, pres Bordeaux. (Notice to Airmen No. 69.)

## Flight of Foreign Aircraft Over Spanish Territory

It is hereby notified that the following Royal Order concerning the flight of foreign aircraft over Spanish territory has been issued by the Spanish Ministry of Public Works :—

1. Permission for foreign aircraft to enter, fly over or land on Spanish territory, will be issued by the Ministry of Foreign Affairs, after the necessary diplomatic negotiations have been carried out.

2. When applying for permission, the following information must be supplied :—

- Place of entry into Spain.
- Object of flight.
- Place or places where it is proposed to land.
- Duration of stay in Spain.
- Place of departure from Spain.
- Name of pilot of aircraft.
- Weight and nature of cargo.
- Nationality and registration marks.
- Type of aircraft and engine.

3. Each machine shall carry the following documents :—

- Pilot's licence.
- Certificate of Registration (of the country of origin).

(c) Certificate of Airworthiness.

If the machine is carrying passengers it shall also carry :—

(a) Aircraft and engine log books.

(b) Bill of health.

(c) List of passengers visé by the Spanish representative at the place of departure.

If the machine carries merchandise it shall also carry :— Declaration of freight; and from the moment in which the aircraft crosses the frontier, it shall conform to all the prevailing Customs laws, and especially to that laid down in Chapter X of the Regulations of 25.11.19.

4. Should the visit be undertaken through invitation from a Spanish source, or if it is of an official character, permission to enter Spanish territory should be obtained according to the conditions of this Royal Order, with the exception of Article 1; in this case the Ministry of Public Works issuing the permission instead of the Ministry of Foreign Affairs.

5. Aircraft are not permitted to use W.T. apparatus in Spain unless special permission is obtained beforehand.

6. On entry into or departure from Spain, the pilot of the aircraft shall notify the fact (by telegram) to the Ministry of Public Works.

Heads of Aerodromes will be held responsible for the fulfilment of this regulation, as well as all the regulations of this Royal Order and all Regulations already published and to be determined later.

7. Personnel of aircraft, from the moment of entering Spain, must conform to all regulations regarding lights and signals, flying in the neighbourhood of aerodromes, rules for air navigation, and shall not fly over prohibited areas.

Heads of aerodromes shall enforce this regulation, and shall report to the Ministry of Public Works any infraction of the same.

8. In the case of aircraft intended for use on regular air lines, a guarantee shall be given by the applicants that the aircraft will make use of aerodromes established and authorised according to the requirements of this Department.

Should these aerodromes be the property of persons other than the person requesting permission to enter, the latter shall present a permit signed by the owner of the aerodrome.

Afterwards, on a regular service, the machine shall carry such documents as are mentioned in Article 3 of this Royal Order.

9. All aircraft on entry into or departure from Spanish territory shall land in the aerodromes for which permission is given which will in every case be on the frontier, Customs and health officials being appointed by this Ministry.

10. Permission to enter Spain must be requested from the Ministry of Public Works not less than fifteen days before the proposed flight.

Applications to be made to Ministry of Public Works, vide Art. 10. Commercial Résumé, March 1920, Appendix I. (Notice to Airmen No. 70.)

## Aerodrome and Seaplane Bases in Holland

It is hereby notified :—

Notice to Airmen (No. 53) of May 14, 1920, is hereby amended, the following aerodromes and seaplane bases in Holland having now been made available for civil aviation :—

	Lat. N.	Long. E.		Lat. N.	Long. E.
(a) Aerodromes—			(b) Seaplane Bases—		
De Kooy..	52 57	4 53	De Mok..	53 0	4 52
Schipol ..	52 19	4 48	Schelling- woude.	52 22	4 58
Soester- berg	52 8	5 17	Veere ..	51 33	3 40

Of these, only the aerodromes at Schipol and the seaplane station at Schellingwoude are licensed for Customs House purposes. (Notice to Airmen No. 71.)

## R.A.F. Lawn Tennis Tournament

THE Royal Air Force will hold a Lawn Tennis Tournament (both singles and doubles) at Queen's Club, on July 5 to 8 inclusive, concurrently with those of the Royal Navy and Army.

Applications for entrance forms should be sent to the Secretary, R.A.F. Recreational Council, Air Ministry.

## R.A.F. Reunion Dance

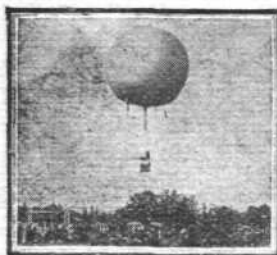
A REUNION dance for officers of the R.A.F. and W.R.A.F. will be held at Australia House, Strand, on Friday, June 25, dancing from 9 p.m. to 2 a.m. Applications for tickets—

gentlemen 15s., ladies 10s. 6d.—should be addressed to Miss Scott, 15, Trebovir Road, Earl's Court, or Miss Goddard, 41, Gloucester Street, S.W.

## Airship Lecture in Commons

ARRANGEMENTS have been made by the Parliamentary Air Committee for Air-Commodore Maitland, C.M.G., D.S.O., to deliver a lecture on Modern Airships in the big Committee Room of the House of Commons on Monday, the 28th instant, at 6 p.m. By special permission of the Lord Chamberlain and of Mr. Speaker, the lecture will be illustrated by up-to-date lantern slides, and all Members of either House will be welcome.

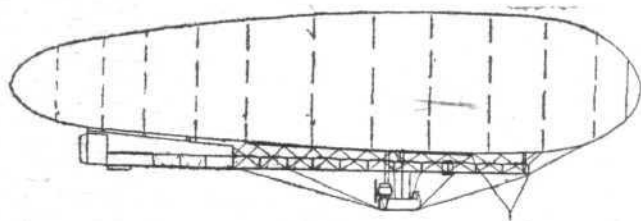




## MODERN ITALIAN AIRSHIPS

IN 1908 the Italians, inspired by the progress made in France and Germany, commenced the design and construction of airships. At first three types were considered, the P. type or Piccolo, the M. type, signifying medium-sized, and the Forlanini. These three designs have been developed during the past ten years, and are still in existence under the same titles. In addition, two other types, the Uselli and the D.E., have been evolved, which have proved successful enough to warrant their inclusion in future building programmes.

During the War airships have been employed both by the naval and military authorities; by the former for anti-submarine patrol and examination duties, by the latter for

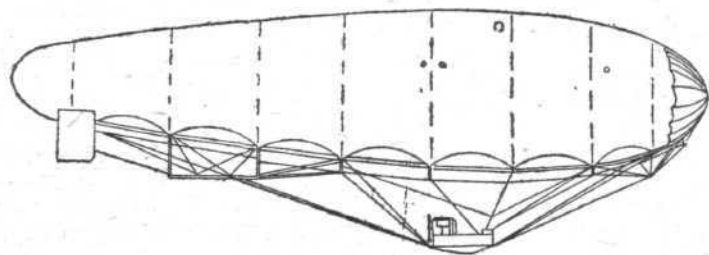


USELLI TYPE

### MODERN ITALIAN AIRSHIPS: Side elevation of the Uselli type

bombing raids and observation purposes. As was pointed out in the article on the M. type of airship, purchased by the British Government and designated S.R.1, the requirements of airships differ very materially in Italy from those demanded by the British Navy. Briefly stated, the conditions imposed on the Italian designer require height as of primary importance, speed quite a minor consideration, and endurance very low compared with ours. Bearing these objects in mind, it will be seen that the airships described below, although radically opposed to ours in many features, fulfil the purposes for which they were constructed.

The chief problem of the Italian designer is to save weight in order that height may be increased, and our problem of providing and distributing tanks so that every pound of disposable lift may be devoted to fuel does not concern him. The Italian practice is to carry all the fuel in the car, which



D.E. TYPE

### MODERN ITALIAN AIRSHIPS: Side elevation of the "D.E." type

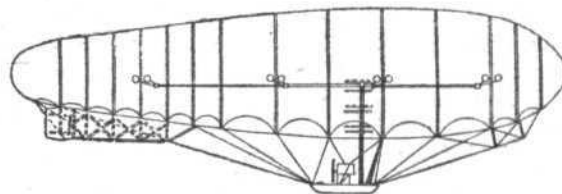
thus forms a single concentrated weight to be supported by the envelope. This necessitates a large number of suspensions, which increases resistance to the air, but as speed is of little relative value, this point is of no great moment.

The cars rigged even to the largest airships compare most unfavourably as regards comfort with ours. As a rule, they are only partially covered in, and are not provided with any proper sleeping accommodation. This emphasises the fact that long flights are not regarded as a necessary requirement.

All the airships which come within the scope of this article are of semi-rigid design; that is to say, an essentially non-rigid envelope is employed which is strengthened by the addition of a metal keel. Two distinct designs of keel have been adopted which render their functions entirely different. (a) The hinged keel, which is in effect a series of rigid links, is comparable with the chain of a bicycle. All connections of these links are hinged, which allows the keel to take up the different angles, in the vertical plane, imposed by the various stresses and strains. The shape of the airship is therefore maintained by the pressure within the envelope and not by the keel, but its resistance to compression allows a lower pressure to be used than is the case with a purely non-rigid ship.

(b) The rigid keel is completely rigid, and assists in maintaining the shape of the envelope. By employing this system the car can be rigged closer to the envelope than in other designs. In Italy the British method of supplying air to the ballonets through airscoops fitted in the slip-stream of the propellers is never used. Before leaving the shed, the ship is blown up to pressure by means of a blower, and when in flight relies on a valve in the nose and its own air speed for the main air supply. A hand or foot-driven pump is occasionally used as an auxiliary measure.

Finally, the Italians still adhere to the antiquated practice of fitting control planes of the box type to all their airships.



P. VELOCE TYPE

### MODERN ITALIAN AIRSHIPS: Side elevation of the "P. Veloce" type

The elevator planes are biplane, and have no fixed portion, and the rudders are hinged to their extremities. It must be admitted that they appear to be quite content with them, and that they cause no trouble whatever.

The various types will now be outlined briefly, as space forbids a detailed description of every design.

#### M. Type

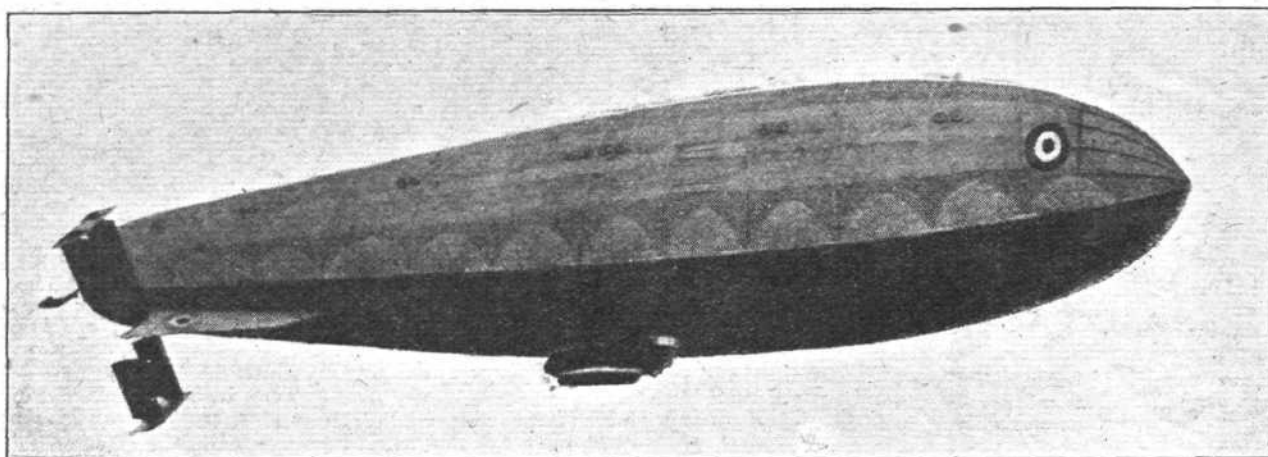
The latest ship of this design was described in a previous article relating to the British purchase now known as S.R.1. These ships are of 450,000 cubic feet capacity, and have a hinged keel and six gas compartments. The ballonnet capacity is 45.9 per cent. of the envelope volume, and is equivalent to a rise of 15,000 feet. The envelope is composed of two-ply fabric, and is fitted with 12 gas and 14 air valves.

Two 200 h.p. Itala Maybach engines provide the power, which is transmitted to the propellers, mounted aft of the car by means of two long tubular shafts.

The M. class is probably the most successful airship possessed by the Italians today. It was employed for bombing operations at the front, and, in addition to the guns and ammunition, bombs were carried of a total weight of one ton. It is capable of attaining a height of 17,000 feet carrying a crew of five.

#### D.E. Type

The D.E. is a small airship, and corresponds to a certain extent to our own S.S. ships. It is of semi-rigid design, with the hinged keel similar to that employed in the M type. The car is shaped like a boat, as in the British S.S. Zero, with the engine mounted on bearers aft above the level of the car. No seating accommodation is provided. Similar rudders and elevators to those of the M. ships are adopted



**MODERN ITALIAN AIRSHIPS : An improved "M." type in flight**

with the exception of the top stabilising fin, which is dispensed with.

The envelope in this case is composed of three-ply fabric, and is divided into compartments, giving a total capacity of 92,000 cubic feet. The gas consumption of these ships is exceedingly low, an average number of two tubes per day being all that is required under ordinary conditions.

A 100 h.p. six-cylindered vertical Fiat engine supplies the motive power driving a two-bladed pusher propeller.

The climbing capacity of these ships is very remarkable, and they are exceedingly easy to handle. They were employed on coast patrol work during the War.

#### Uselli

This ship was designed by a private firm, unlike the two previously described, which were a production of the official headquarters, and on the whole is not regarded as a success.

The envelope is of single-ply fabric, and proofed with a patent form of dope. Its capacity is 141,000 cubic feet, with two internal ballonets fitted, which are said to cause the ship to surge rather badly.

The rigid type of keel has been adopted in this case, which is entirely external to the envelope, and is triangular in cross sections. It is laced to two eyeletted bands which are stuck and sewn on to the envelope.

The car, which is suspended from the keel, is rather more comfortable than in most Italian ships, and is fitted with W.T. and the usual instruments.

An interesting feature is the employment of lifting planes situated amidships to increase the dynamic lift.

The engines installed are two Fiat Colombos of 100 h.p. each.

#### P. Type

The P. ships are another product of the official headquarters, and possess an envelope with the internal hinged keel on similar lines to that of the M. type, but naturally on a smaller scale, as the capacity is only 176,500 cubic feet.

The car, however, is quite different, being boat-shaped, with the engines mounted on gentries on the port and starboard sides. The ship is fitted with dual control. Petrol is carried in a tank in the car, while the water ballast is placed beneath the flooring, and sand ballast is also taken up in bags.

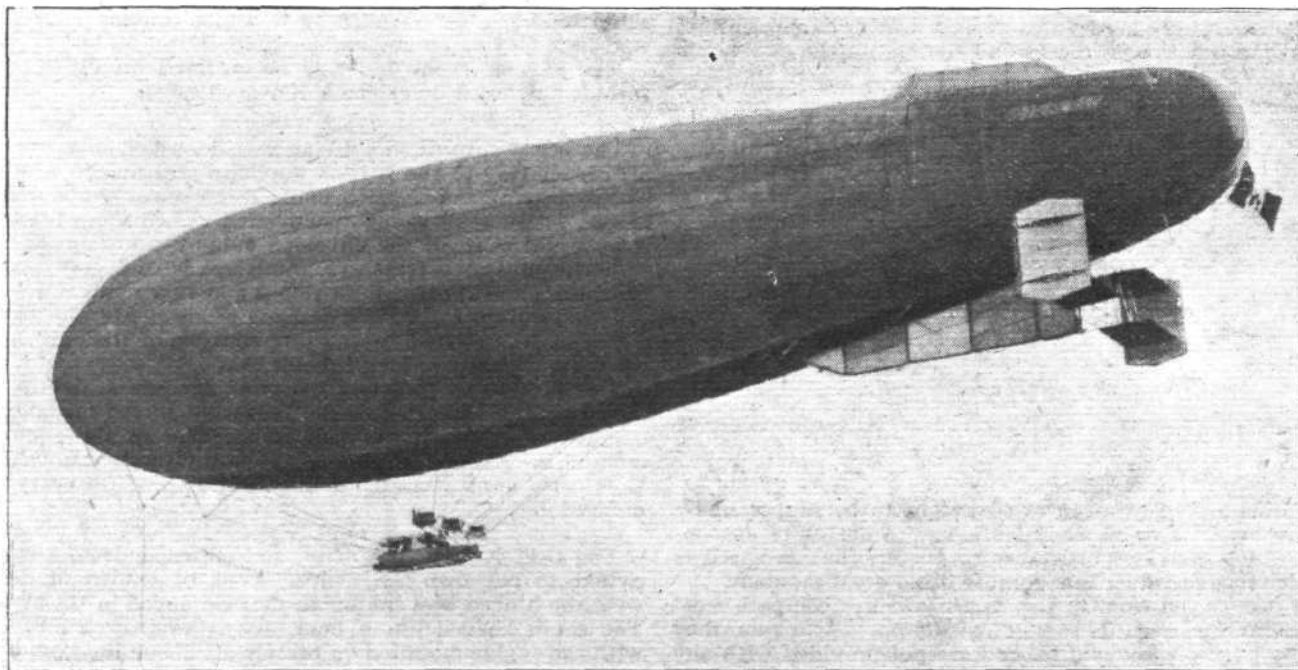
The engines employed are two 75 h.p. Fiats driving propellers with reversible blades.

The P. ship is now out of date, and is used only for the instruction of pilots.

A later type is now in commission known as the P. Veloce. This ship is of the same dimensions and capacity, but more powerful machinery has been installed, which has augmented greatly the speed. Two S.P.A. engines of 225 h.p. each have replaced the 75 h.p. Fiats. The change has, naturally, increased the weight enormously, and the endurance has decreased as a consequence in comparison with the earlier ships of the type.

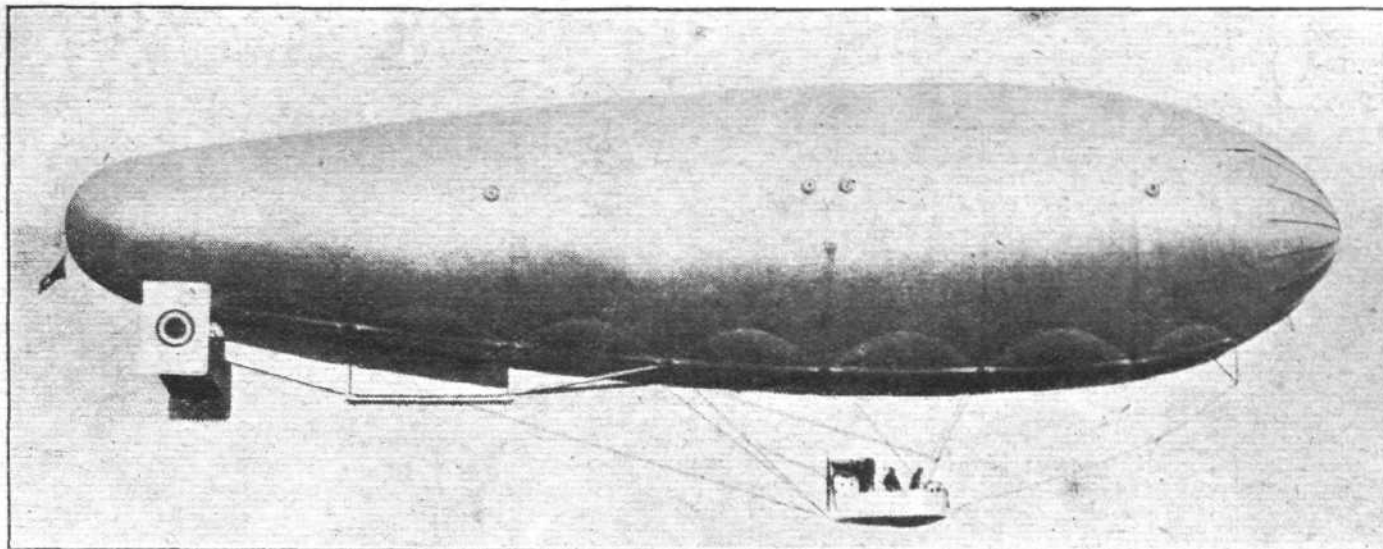
#### Forlanini

The airships manufactured by the Forlanini Co. are probably the best known to people outside Italy, as various references have been made to them in the Press from time to time. It is interesting to recall that when the airship section of the Royal Naval Air Service was re-constituted in the Autumn of 1912, an order was placed for three ships of this design to be built. At the outbreak of War the



**MODERN ITALIAN AIRSHIPS : The "M.51," fitted with three S.P.A. engines**





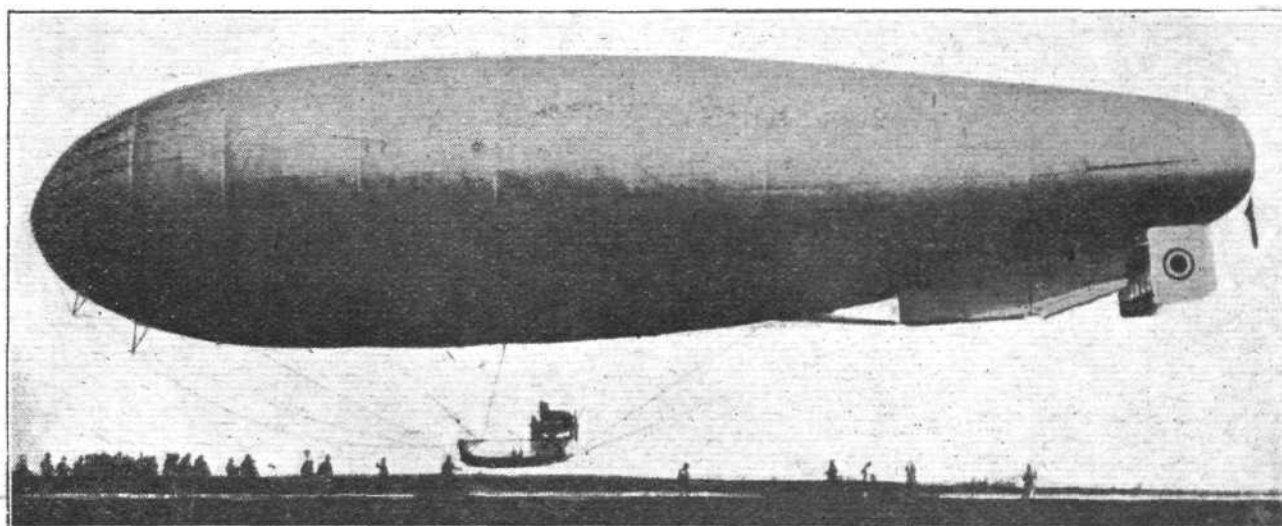
MODERN ITALIAN AIRSHIPS : The "D.E." type

Italians took over the original ship which was building, and the order was cancelled.

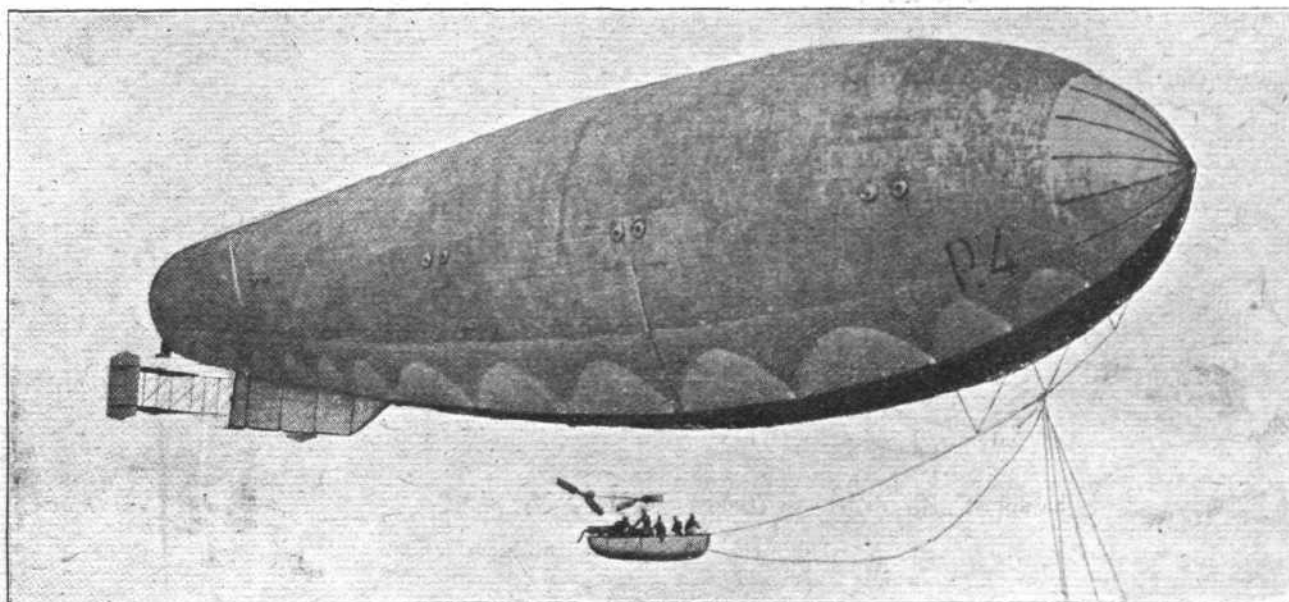
Various models of this ship have been produced which vary in capacity, engine-power, etc., but the main features as a whole have been incorporated in all later vessels.

The keel in this instance is strictly rigid and unlike the Uselli, is internal.

As this type is more or less distinct from any other type of airship, it is of sufficient interest to warrant a detailed description. The envelope consists of an inner or gas



MODERN ITALIAN AIRSHIPS : The "O." type, similar to the "D.E.," but larger



MODERN ITALIAN AIRSHIPS : The "P." type

envelope, provided with transverse and lateral diaphragms, and of an outer one that completely surrounds the former, a continuous and entirely free air space being left between the two, the bottom portion of which forms the air ballonet. The air pressure in the latter is maintained during flight by means of air-intake valves located in the rigid nose of the envelope, consisting of a large number of balanced blades. A mechanically-driven fan maintains air pressure when not in full flight. Excess of pressure is disposed of by means of automatic air-relief valves located at the rear of the envelope where the aerodynamic influence of velocity is practically nil. By this form of construction, the gas envelope is not only protected against the action of the sun, but it is relieved from all stresses due to velocity—in fact, the conditions obtaining in the rigid are closely approached. The outer envelope is plain varnished silk, strengthened by a series of closely-set longitudinal and circumferential bands fitted to its inner surface, and suitably connected to the inner envelope. It is connected to the underside of the rigid frame by two catenary bands, and the bottom portion of the envelope can be opened up longitudinally, exposing to view for inspection or repair the frame, suspension and gas envelope.

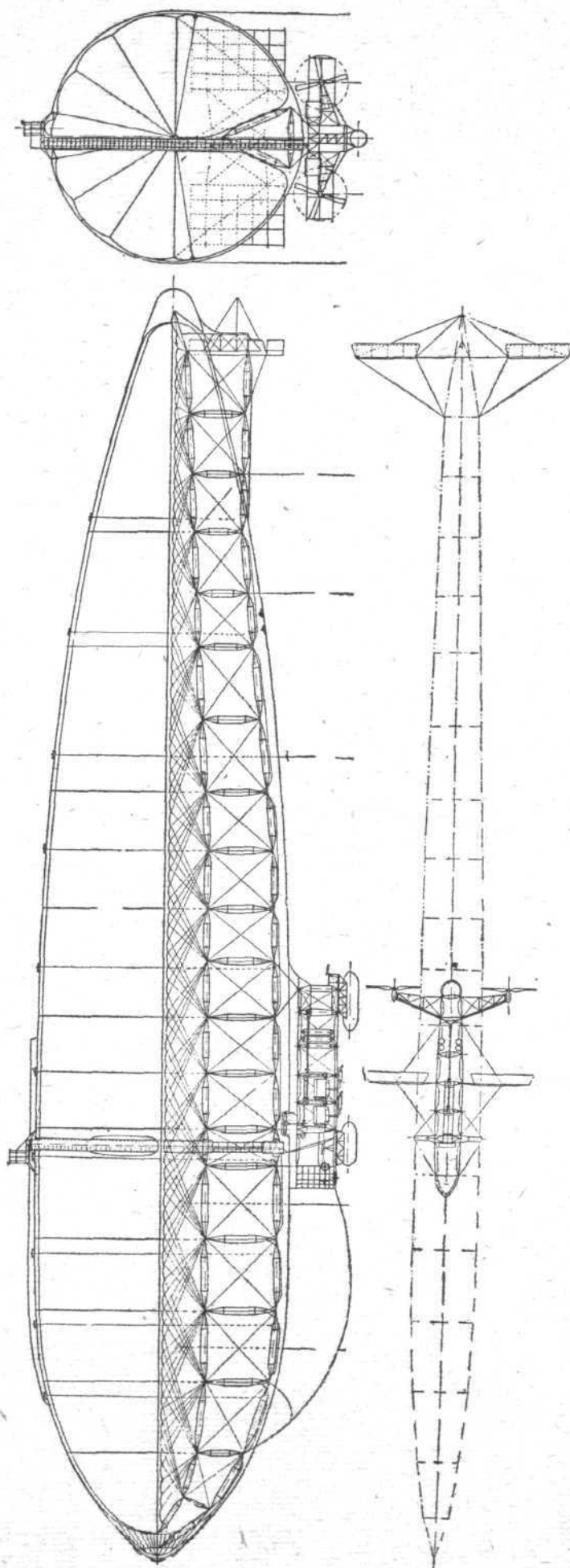
The inner or gas envelope is divided into numerous independent gas-tight compartments by transverse and longitudinal diaphragms, the latter radiating from the fore and aft axis of the envelope, where a strong "axial band" is formed. From this band is suspended the rigid girder frame by a wire suspension. The envelope is of silk, the longitudinal diaphragms being of plain natural silk, and the transverse diaphragms of gummed and varnished silk. The suspension band is of nine-fold silk. Each gas compartment has its own gas relief valve, acting as a safety valve or control valve. In the former case, they are operated directly and automatically by the lower portion of the envelope, by means of a rope, and in the latter pneumatically.

The connection between the girder and the envelope is by means of wire-rope ribs leading in pairs from the junction knots in the upper extremity of the girder to the underside of the suspension band, the bottom edge of which consists of a series of catenaries; whilst further lateral connections are provided to retain the top portion of the envelope in true form. Thus it will be seen that the whole suspension—the car being practically speaking integral with the girder frame—is concentrated about the axis of the ship, resulting in an exceptionally rigid construction.

The frame or backbone of the ship, as previously stated, is contained within the envelope, and consists of an entirely rigid triangular lattice girder extending from end to end of the ship, and including the nose. Projecting as it does upwards within the envelope, it divides the lower portion of the gas envelope. It is built up of steel tubes braced with diagonal steel wires, and carries the car, control surfaces, etc. The girder is designed to withstand any stresses that may arise from abnormal flying conditions (pitching, etc.), or uneven distribution of load due to the partial or total deflation of any of the gas compartments. The car, also of steel tube construction, is suspended from the girder-frame by rigid tubular connections, and is arranged almost flush with the envelope. It is almost completely enclosed, the covering being of fabric, and the nose is provided with glass windows. A shaft extends upwards through the envelope from the car to a gun platform on the top of the envelope. The stiffening of the nose is carried out by a rigid conical cap, from which a set of slightly elastic ribs extend rearwards to support the forward portion of the outer envelope. The whole "umbrella" is rigidly connected to the girder-frame.

The control and stabilising surfaces are in two groups, the former, for steering the ship vertically and horizontally, being located at the stern of the ship, whilst the latter are arranged admidships. These stabilising surfaces consist of two groups of superimposed horizontal planes, mounted one on each side of the car. The control surfaces consist of two symmetrical grids, comprising vertical and horizontal surfaces, mounted on the end of the rigid girder or keel. None of these surfaces are hinged, but they are flexible, having their leading edges firmly fixed and being warped for the required horizontal and vertical control. They are operated through an irreversible worm gear.

Except in the case of models F. 3, F. 6 and F. 7, the Forlanini dirigibles are equipped with two engine (the others have four), which are mounted tandem-fashion on the floor of the car, and drive through a friction clutch and gear-box two four-bladed air screws, one mounted on each side of the car. The gear-box is so designed that either engine can drive any one, or both air screws as desired. Should one engine stop, it is kept warm by the running engine, thus



MODERN ITALIAN AIRSHIPS : Sectional drawings of the Forlanini type (F.4.)

facilitating starting and preventing the water and oil freezing at low temperatures. The air screws are of the adjustable reversible pitch type, similar to those on the M. and V. type.

The following table gives comparative characteristics of the various Forlanini dirigibles, Nos. F. 3 to F. 7:—



	Length	Diameter	Total capacity	Gas capacity	Total weight (empty)	Weight per cub. ft. gas	Useful load	Power plant	Speed
	ft. ins.	ft. ins.	cub. ft.	cub. ft.	lbs.	lbs.	lbs.	h.p.	m.p.h.
F. 3	295 4	59 0	529,500	487,140	23,100	0.050	—	4 × 100	46
F. 4	295 4	59 0	529,500	490,670	20,460	0.041	3,080	2 × 160	45
F. 5	295 4	65 7	670,700	628,340	21,340	0.033	7,700	2 × 240	43
F. 6	295 4	65 7	670,700	628,340	22,660	0.035	6,380	4 × 190	46
F. 7	360 10	75 5	1,059,000	988,400	33,440	0.033	12,100	4 × 350	50

Bombing raids were the operations usually allocated to these ships. They are able to fly at great heights, and, in addition to guns and ammunition, are able to carry approximately two tons of explosives.

The following tabulated statement gives the leading dimensions and also the capabilities of the five different types of airships described in this article:—

	M. type	D.E. type	Usuelli	P. type	Forlanipi 5
	ft. ins.	ft. ins.	ft. ins.	ft. ins.	ft. ins.
Length ..	285 0	159 0	180 6	203 6	295 4
Breadth ..	57 0	34 6	36 0	39 4	65 7
Overall height	72 0	55 9	54 2	70 7	88 7
Capacity ..	45,000 c.ft.	92,000 c.ft.	141,000 c.ft.	176,500 c.ft.	628,340 c.ft.
Max. speed	46.5 m.p.h.	40 m.p.h.	45.88 m.p.h.	40.30 m.p.h.	43 m.p.h.
				56 P. Vel.	
Useful lift ..	13,000 lbs.	—	4,136 lbs.	2,860 lbs.	7,700 lbs.

#### A. Type

A new design of airship is the A. type, which as regards envelope, keel, control planes, etc., resembles to a great extent the M. ship, but the cars and engine arrangements are entirely different. The cars are boat-shaped in accordance with the latest principles of the Institute, and are suspended one forward, the other amidships.

In each car two 225 h.p. S.P.A. engines are carried on tubular gantries on the port and starboard sides, driving direct pusher propellers. This design eliminates the complicated system of transmission so noticeable in other ships.

#### G. Type

During the War a rigid design was considered, but at a later date was abandoned. This ship was to be of approximately 1½ million cubic feet capacity, giving an estimated useful lift of 39,000 lbs. Six Itala engines, giving a total horsepower of 11,000, were to supply the motive power at an estimated maximum speed of 55 m.p.h., with an endurance of 50 hours. It would have been interesting to have compared this ship with our earlier rigids, but unfortunately the

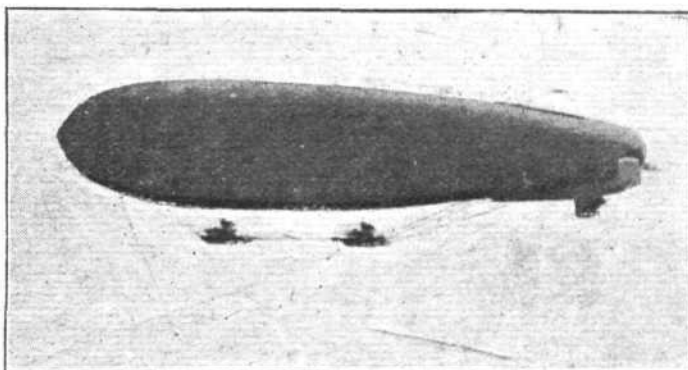
Italians were not sufficiently impressed with the possibilities of rigid airships, and construction was ultimately abandoned.

Although the Italian airships appear to have accomplished what was required of them during the War, they do not seem likely in their present state of development to be of any great value commercially. The advantage possessed by the airship over the aeroplane for commercial purposes is its power to remain in the air for long periods, and in this the Italian military airships are entirely lacking. We may be sure that those in authority in that country will not be slow to grasp

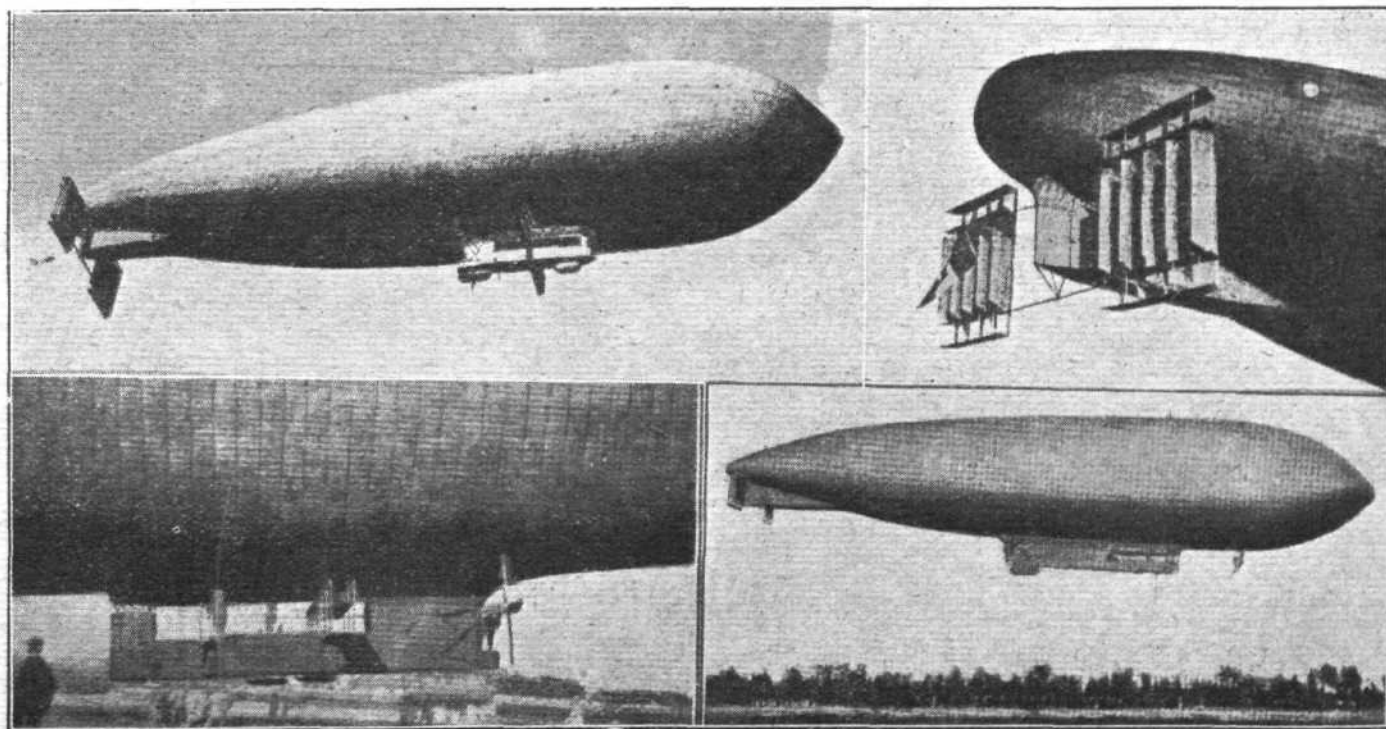
this fact, and the future development of their design and construction will be awaited with considerable curiosity. The Italians have proved themselves to be both skilful aviators and clever designers, and should they fail from lack of interest to tackle the problems presented by commercial airship flying universal disappointment will be occasioned.

Since the armistice, it is true, a certain amount of development has been carried on as regards the commercial side. For instance, the M-1 type has been converted for a passenger service at Rome. In this case a huge double-decked gondola replaced the former one. Each deck is provided with light comfortable chairs, and both are enclosed but have large side windows giving an excellent view. The three engines are mounted at the stern, two high up at each side, and one in between a little further aft, all driving propellers.

A new and apparently successful Usuelli type has also been built, capable of carrying 25 passengers.



MODERN ITALIAN AIRSHIPS: The "A." type, which has two cars, each with two engines



MODERN ITALIAN AIRSHIPS: The Forlanini. On the left the F.4, and below the car; on the right a view of the tail, and below a side view of the F.3.

## A KIPLING FORECAST

CAPTAIN ROSS-SMITH'S flight to Australia has freshened our memories of the fantastic tales of Jules Verne, for some of them are coming nearer the truth than our fathers ever expected. But, personally, for the finest mixture of shrewd conjecture with pure imagination, I plump not for "Round the World in 80 Days," but for Kipling's tale "With the Night Mail."

I am not certain when it was written—the date in my copy of "Actions and Reactions" is 1908; a date when the world was trying to realise what the Wrights were doing in France.

The story, as most readers know, is an account by a journalist of 2000 A.D. of his journey to America by air in the Night Mail Packet. The machine is metallic but lighter-than-air, using a gas of excessive lifting power which can be reduced instantaneously to liquid form by a special "Henry Ray"; and which is consequently used in gas form both to lift the machine and maintain balance, and (by expansion through turbines) to drive the propellers. The machine thus carries an almost endless supply of fuel. But the pure delight of the story is the way in which Kipling has captured the spirit of the flight, the weather description and the flying slang which he evolves but leaves unexplained to the present-day reader. It is useless to expatiate; one must read the story itself. I have read it till I know it nearly by heart.

Now hardly a week passes but some fresh event brings the yarn to mind. It is not long since we had those two great telegrams: "Landed at Clifden at 8.40 a.m. G.M.T., June 15, Vickers-Vimy Atlantic machine, leaving Newfoundland Coast 4.28 p.m. G.M.T., June 14. Total time 16 hours 12 mins. Alcock and Brown."

And while we still tried to understand how the world's nations were being knit together, came the second:—

"July 6, 2 p.m., R 34 landed at Mineola Hazelhurst Field, Long Island."

The latter journey, though slower, was far more interesting to me, for Gen. Maitland's log of the incidents of the voyage makes wonderful comparison with the voyage of Packet 162. Look at R 34's electric storm over Newfoundland, and 162's "little draught" so graphically described, in the neighbourhood of the North Banks Mark Boat. If you are a pilot you will feel yourself in Purnall's place, and will appreciate with a greater wonder Kipling's imaginary account of bad weather flying. Perhaps the "wulli-was" and "blow-outs" are overdrawn; but as a pilot myself I say "No!"



### Seaplane Work in Anatolia

A MESSAGE from *The Times* correspondent at Constantinople, dated June 18, dealing with the fighting at Ismid, states that "small parties of Nationalists working towards the north-west of Ismid have been shelled, and also bombed by our seaplanes."

for we are only on the fringe of the truth of the weather. Although British machines have done the London-Paris trip at 180 miles per hour, we cannot yet vouch for the effect of driving a steel hull like "162" at five miles a minute through an obnoxious variety of electric storm.

I remember the weird effect of re-reading the story in my "first solo" days, while the night flying squadron practised circuits and landings. I imagined myself an old man, smiling reminiscently as if it had all happened before, taking the kiddies to watch the various Night Packets pulling out of the Receiving Towers.

The other day an official "Notice to Airmen" said:—"The Radio Telephony Stations at the Aerodromes at Hounslow and Lympne are now working on 900-metre wave length. . . ." It is probable that a very large public does not know we have a wireless telephone so efficient that a machine crossing the Channel can be heard speaking with the receiver lying on the table at a London aerodrome; surely not a far cry to the "General Communicator."

And you remember Purnall's grouse that the planet was over-lighted? You perhaps did not notice the beginning of the trouble in the "Notice to Airmen" of October 6.

"As a temporary and emergency measure to assist belated aircraft to locate their aerodromes after dusk, the Air Ministry has arranged for vertical searchlight beams to be projected from the following aerodromes about dusk till all service machines have arrived:—

Hounslow, one vertical beam.

Kenley, two vertical beams.

Lympne, three vertical beams arranged in a triangle."

One wonders if even now Sargent, Ahrens, and Dubois are in the world's laboratories preparing their inventions for lighting the world's air-traffic on its way.

And what of Magniac and his wonderful mushroom rudder and elevator? How long before we use such a device for steering and pulling-up short, in the air or on the ground, instead of our primitive flaps and skids?

One thing is certain: aeroplanes and airships in their present form are rapidly reaching a limit, and we are nearly ready for the next great discovery of science, and its application, to open up a new stage in aeronautics, as Lodge's work applied by Marconi has given us wireless telegraphy.

In a few years we may see, in spirit if not in letter, the incarnation of Henry and his "Paradox of the Bulk Headed Vacuum."

E. B.



### A Transatlantic Zeppelin Ordered

ACCORDING to a Berlin wireless telegram an American firm has placed an order with the Zeppelin Yard for the construction of an airship at the price of £175,000 for the inauguration of an airship service between New York, London and Berlin.



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A close view of the tail of one of the large Sikorsky biplanes. From this an impression can be gained of the hugeness of the machine

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## PROTOCOL TO INTERNATIONAL AIR CONVENTION

THE Air Ministry makes the following announcement:—

It was hoped, when the International Air Convention was drawn up, that the States which remained neutral during the War would in due course, adopt the Convention, so that a uniform system of international control of the air might come into force on the ratification of the Convention by the Allied and Associated Powers.

It was found, however, that certain neutral countries, *e.g.*, Norway, Sweden, Denmark, Switzerland and Holland, were not prepared to accept the Convention.

The principal ground of objection on the part of neutrals was Article 5 of the Convention, which binds contracting States to forbid the flight over their territory of aircraft of non-contracting States. This would make it impossible for neutrals, were they to adopt the Convention, to allow freedom of flight over their territories to aircraft of the late enemy countries—although they have enjoyed such intercourse throughout the War—until such time as the latter also became parties to the Convention. In the case of the Allies the same difficulty would not arise, since, although bound by Article 5, they possess, under the Peace Treaties and independently of reciprocity, rights of flying over the late enemy countries.

In order to meet this main objection of neutral countries, a Protocol to the Convention was drawn up by the Council of Ambassadors, on the recommendation of the Aeronautical Commission in Paris, whereby exceptions—formally termed derogations—in regard to Article 5 of the Convention may, on good reason being shown, and with the consent of the Contracting States, be permitted. By this means, a State which has accepted the Convention in other particulars will be authorised to permit the flight over its territory of the aircraft of specified non-contracting States. These derogations will be for a limited period, but will be renewable unless an objection is lodged by a contracting State. The Protocol has now been signed by most of the Contracting States. The following are the texts of Article 5 of the International Convention and of the Protocol referred to above:—

### ARTICLE 5

"No contracting State shall, except by a special and temporary authorisation, permit the flight above its territory of an aircraft which does not possess the nationality of a contracting State."

(Translation)

### Additional Protocol to the Convention of October 13, 1919, relating to the Regulation of Aerial Navigation

The High Contracting Parties declare themselves ready to grant, at the request of signatory or adhering States who are concerned, certain derogations to Article V of the Convention, but only where they consider the reasons involved worthy of consideration.

The requests should be addressed to the Government of the French Republic, who will lay them before the International Commission on Aerial Navigation provided for in Article 34 of the Convention.

The International Commission on Aerial Navigation will examine each request, which may only be submitted for the acceptance of the contracting States if it has been approved by at least a two-thirds majority of the total possible number of votes, that is to say, of the total number of votes which could be given if the representatives of all the States were present.

Each derogation which is granted must be expressly accepted by the contracting States before coming into effect.

The derogation granted will authorise the contracting State profiting thereby to allow the aircraft of one or more named non-contracting States to fly over its territory, but only for a limited period of time fixed by the text of the decision granting the derogation.

At the expiration of this period the derogation will be automatically renewed for a similar period unless one of the contracting States has declared its opposition to such renewal.

Further, the High Contracting Parties decide to fix June 1, 1920, as the date up to which the present Protocol may be signed, and, on account of the bearing which the present Protocol has on the Convention of October 13, 1919, to prolong until that date the period under which the above-mentioned Convention may be signed.

DONE AT PARIS.....  
in a single copy, which shall remain deposited in the archives of the Government of the French Republic, and of which authenticated copies will be transferred to the Contracting States. The said copy, dated as above, may be signed up to and inclusive of the first day of June, Nineteen hundred and twenty.

In faith, whereof, the under-mentioned Plenipotentiaries, whose powers have been found in good and due form, have signed the present Protocol, of which the French, English and Italian texts will be recognised as of equal validity.

## ROYAL AERONAUTICAL SOCIETY NOTICES



**Wilbur Wright Lecture.**—Prior to the Wilbur Wright Lecture, which was delivered by Commander J. C. Hunsaker at the Central Hall, Westminster, on June 22, a Council dinner was held at the Carlton Restaurant which was honoured by the presence of H.R.H. The Duke of York. The other guests were:—Sir E. H. Tennyson d'Eyncourt, Air Vice-Marshal Sir E. L. Ellington, Wing-Commander Louis Greig, Major Melvin Hall, U.S.N., Commander J. C. Hunsaker, U.S.N., Commander E. S. Land, U.S.N., The Marquess of Londonderry, Major General E. D. Swinton, Major General Sir F. H. Sykes, and Mr. Griffith Brewer. The following Members of Council were present: Air Commodore R. K. Bagnall Wild, Major General Sir R. M. Ruck, Lieut.-Colonel A. H. Burgoyne, Air Commodore H. R. M. Brooke-Popham, Wing Commander T. R. Cave-Browne-Cave, Sir Robert Hadfield, Mr. A. Ogilvie, Mr. F. Handley Page, Mr. A. V. Roe, Mr. G. Holt Thomas, Major H. E. Wimperis, Major Low, Colonel H. T. Tizard, Mr. H. White Smith, and Lieut.-Colonel W. Lockwood Marsh (Secretary).

**Olympia Aero Show.**—Arrangements have been made for a reception room for the use of members to be available during the Aero Show, which is to be held at Olympia from

July 9 to 20. Stand numbers 94 and 95 have been allotted for this purpose by the Exhibition Committee, and will be found immediately on the left of the Hammersmith Road entrance. A telephone which may be used free by Members will be installed, and the number will be announced as soon as this is known. The room will be fitted up as a sitting room, and current numbers of aeronautical papers will be transferred for this period from the Library at 7, Albemarle Street.

**Elections.**—The following Members were elected in the various grades as shown at a Council Meeting held on June 15, 1920: *Fellow*: Mr. H. P. Folland. *Associate Fellows*: H. B. T. Childs, F. A. Foord, Captain G. T. R. Hill, A. V. Jacques, V. A. H. Robeson, B. Thomson. *Members*: A. C. Clinton, E. A. Dobbs, H. A. S. Gothard, T. J. Gray, A. Innes, J. J. Meekin. *Student*: W. L. Le Page. *Foreign Members*: Lieut.-Commander De W. Ramsey, R. H. Upson.

**Chairman.**—Air Commodore H. R. M. Brooke-Popham was, as a result of the Council Ballot, declared duly elected Chairman of the Society for the year 1920-1921 at a Council Meeting held on June 15. He will assume office in October next.

W. LOCKWOOD MARSH,  
7, Albemarle Street, W. 1. Secretary

### High Flying in Australia

CAPTAIN COLE, flying one of the Imperial Government's gift aeroplanes at Point Cook Aerodrome, Australia, with a passenger, on June 21 reached an altitude of 27,000 ft., which is claimed as an Australian record.

### A Mishap to Sir Ross Smith

WHILE flying round Sydney during the time the Prince of Wales was arriving on June 16 Sir Ross Smith, on a de Havilland aeroplane, accompanied by a photographer named

Hurley, fell in the harbour owing to engine trouble. Sir Ross Smith and his companion were picked up by a Government launch little the worse for their ducking.

### Still Progressing

LIEUTENANTS PARER and MCINTOSH still persevere in their intention to fly to Australia, although they had a forced landing on June 15 in Wellesley Province (Straits Settlements). They were unhurt, but the machine was slightly damaged. They arrived at Singapore on June 17.



JUNE 24, 1920

# INDEPENDENT AIR FORCE

## Second Annual Dinner

LAST week, for the second time, members of the R.A.F. gathered together at the Savoy for their Annual reunion. Air-Marshal Sir H. M. Trenchard, Bart., K.C.B., D.S.O., again occupying the chair. Those present indeed formed a happy family, the *esprit de corps* which was in every one so manifest being a splendid augury for the future traditions of the R.A.F. Those supporting the chair were:—Col. Sir Walter Lawrence, Bart., G.C.I.E., G.C.V.O., C.B.; Group-Capt. C. L. N. Newall, C.M.G., C.B.E., A.M.; Col. Donaldson Hudson, D.S.O.; Wing-Com. V. Bettington, C.M.G., D.S.O.; Col. W. D. Beatty, D.S.O.; Lieut.-Col. R. H. Collier, D.S.O.; Col. F. H. Errington, C.B., V.D.; Lieut.-Col. Waley-Cohen, C.M.G., D.S.O.; Lieut.-Col. W. Hume, D.S.O.; Squad-Leader W. J. Ryan, C.B.E.; Squad-Leader Pattinson, D.S.O., D.F.C., M.C.; Squad-Leader H. R. Nicholl; Squad-Leader A. F. A. Hooper, O.B.E.; Squad-Leader A. W. Teddar; Squad-Leader W. G. P. Young, O.B.E.; Maj. Gardiner-Hill, M.B.E. Maj. T. V. Smith, M.C.; Flight-Lieut. Farrington, D.S.O.; Capt. T. B. Marson, M.B.E.; Flight-Lieut. C. G. Burge, O.B.E.; Flight-Lieut. B. J. Silly, M.C., D.F.C.; Flight-Lieut. J. Burd, D.S.O., M.C.; Flight-Lieut. E. D. Harding; Capt. H. W. M. Paul, O.B.E., M.C.; Flight-Lieut. R. Addenbrooke-Prout, O.B.E., M.C.; Flight-Lieut. A. W. Bengé; Capt. W. A. Herbert; Capt. L. C. Bygrave; Flight-Lieut. T. G. Gordon, M.B.E.; Flight-Lieut. A. C. H. Groom; Flight-Lieut. A. Gray, M.C.; Flying Officer S. B. Collett; Flight-Lieut. W. Topham; Flying Officer A. Trussell; W. Wild, Esq.; S. C. Varcoe, Esq.; F. Rowe, Esq.; R. Darnton, Esq.; S. Robertson, Esq.; O. M. D. Bell, Esq.; Flying Officer C. A. Stevens, M.C.; Flying Officer C. B. Dick Cleland; J. S. Stuart Gill, Esq.; Flying Officer H. T. B. Warmesley, Flying Officer C. C. Blizzard; Flying Officer A. Perry Keene; Flying Officer C. G. McLoughlin; C. G. Jenyns, Esq.; H. C. Clark, Esq.; Flying Officer, R. C. Savory; R. A. Martin, Esq.; F. O. Tanqueray, Esq.; Flying Officer W. Bradford; J. Carrol, Esq.; J. Munson, Esq.; J. E. Gillett, Esq.; Flying Officer J. Mitchell, D.S.O., D.F.C.; F. C. Wareham, Esq.; Stanley Smith, Esq., and Flying Officer Van der Reit.

Following the loyal toasts, Sir Hugh Trenchard, in proposing the toast of the evening, "The Independent Air Force," said, with regard to the dinner, it had been suggested that the amount of the subscription had, owing to the present inflated cost of living, become prohibitive to many officers whom they should very much like to see there. It was they who made the Force what it was, and they could not now afford the cost. So it had been suggested that in future the subscription should be for the dinner only, and that the extra cost of the wine and cigars should be borne by those who wanted them. This might be inconvenient to some, but if it added to their numbers by bringing those gallant young pilots who helped us so much, then he thought it must be agreed to. Speaking upon the Air Service generally Sir Hugh said that at their dinner twelve months ago, on June 14, he ended his speech with the remark that he hoped that in the next two years those who had left the Air Force would be sorry, and that those who had remained would be glad. Only one year had passed, and he was hopefully asking himself if his prophecy of last year was not coming true, as they in the Air Force all wished it to, and for this reason. Last year was a year of what, for want of a less clumsy phrase, he would call a "sweeping away of the rank growth of the War, and reducing the Air Service to a minimum." In fact, last year was a year, so to say, of nothing but destruction. But of very careful destruction. They tried, and he hoped successfully, to destroy nothing that was essential to the future well-being of the Service, nothing of the roots and foundations and traditions of the Service as it was in the War. They pulled down that they might build up. And in spite of the destruction and the sweeping away and the unrest that such a process must naturally bring—or rather because of those things—the Air Service was beginning to grow up again. New roots and strong branches were growing from the old roots and the old stock. For a moment consider what had been done since the War. At the time of the Armistice they had 30,000 officers and 263,000 other ranks. Now they had 2,800 officers and 25,000 other ranks. For every ten then they had only one now. In spite of that great reduction, in spite of perpetual and almost unbearable transference of officers, and their want of security in their posts, in spite of there being little or no flying, in spite of the

demobilisation of a very large number of the best-trained men, in spite of every difficulty, they carried out work in Afghanistan that he hoped shortened that war by several months, they carried out work in Archangel, at Murmansk, and in the Baltic. Many British airmen had been working in South Russia in addition, and had won great credit there too. Also on the North-West Frontier of India; and that great successor to the Independent Force, the "Z" Expedition, had carried out with brilliant success the operations in Somaliland. The Independent Force helped to win the Great War. In Somaliland it won through on its own.

Last year was nonetheless a year of destruction. They pulled down, as he had said, that they might build up. This year was to be a year of building, rapid, but not too rapid. Their foundations must be deep and sure. He hoped that this year some at least of their officers would be able to look upon their posts as secure. They were trying to arrange that junior officers should not be moved from staff billets or outside employment for two years, and that staff officers should be secure for three years. And they hoped to be able to keep officers who were with squadrons where they were, unless they were promoted, and to keep them with their squadrons even then if there were vacancies. Things were getting better daily—they could see that for themselves—but it could not be finished until the end of next year. The expansion of the Air Force that would take place if they took over Mesopotamia would help, though at the same time he was afraid it would make more changes. In the meantime let them all go on working and trying. He wanted to see the officers and men at every station all keen to make their station second to none. This must be done, and it could only be done by watching the details, every officer and every man, of his own work and only his own work—not attempting to do other people's work.

With regard to the Independent Air Force, he was glad to see around him their old and valued friend Sir Walter Lawrence, with many others who had left the Service, but who would, he hoped, continue to look upon it as having been at one time of their lives their foster-father. And who had they left with them of the great Independent Force? First and foremost, the Commander of the old 8th Brigade, who was there that night. They had Pattinson, who commanded the 41st Wing and 99th Squadron. They had Quinnell, though he was not there that night. They had Gray and Silly, of the 55th Squadron, and Burge of the 100th, and many others. And last, but by no means least, they had hoped to see there among them one whom when they were fighting they could not have done without, one to whom they were all of them more indebted than perhaps they realised, one whom they would hope to see there next year and many years—Maj. Maurice Baring. He would ask them all to remember that it was he who had shown them the Air Force at its best, shown them that touch of human nature for which it was famous in the War, and which made it great. Everything in his book brought back most vividly to them those wonderful days when they risked and won so much.

But let them remember these men, and that but for the exertions and efforts of that great force that was not part of the Independent Force and yet was its foundation, they of the Independent Force could not have worked. He meant the Air Force in France, Egypt, Palestine, Mesopotamia, India, and in all theatres of War. He could not forbear mentioning also that great French General to whom they owed a great debt of gratitude, General Castelnau. They had asked him to be with them that night as an honoured guest, but his Parliamentary duties had prevented him.

With regard to those who had left the Air Service. Their connection with the Service had made them an asset to the Empire, and he ventured to say that they continued to be an asset also to the Service; for he hoped that affection for it would prompt them to endeavour to maintain the interest of their great population in the future of the Air Service, and to watch over it and see that it was not allowed to deteriorate; he felt certain that they would be even more jealous, perhaps, of its reputation than those who were still with them.

In conclusion, Sir Hugh asked those who were still in the Service, and those, too, who were not, to do their very utmost this year to help them in the present as they did in the past. Without that they who worked at the Air Ministry could do nothing. When the War was on they showed an energy and a keenness to learn that he believed had never been surpassed. Now they were at peace he asked them to apply themselves



with that same energy and keenness to the detail work which alone would build up our Air Force. It was uninteresting work, perhaps, but it was absolutely necessary, and it was in the ordinary humdrum work of the day that they must set an example, and a high one. The Independent Force and the "Z" Expedition had their day and ceased to be, and each of them did its share in establishing the reputation of the Service. It was probable that the responsibilities of Empire would call into being further similar striking forces, and he wanted them all to use their utmost effort to ensure that each such force in turn should equal and excel their already brilliant traditions.

Col. Sir Walter Lawrence, in responding, said that their chairman was one of those who only had respect for work and results; for mere vapid speakers he had contempt. He, Sir Walter, when he joined up with the I.A.F., was attracted by the name, "Independent." It was just the thing to suit him. But it took but a very short time to find that although the Force was independent of all other

forces, it was absolutely dependent for control and organisation upon Gen. Trenchard. He and the members made their dent upon the great iron wall of Germany. It was they only who really for the first time carried the awful War into the enemies' country, and they knew with what trenchant results. The traditions of the I.A.F. were glorious, and he hoped the reunion would be perpetuated for ever.

Group-Capt. C. L. Newall, C.M.G., in giving the toast of "Air-Marshal Sir H. M. Trenchard," in very happy and much appreciated terms, created a furore by the announcement that their chief was about to be married, which meant, he said, that the toast should be doubly emphasised, to include the future Lady Trenchard, and with musical honours.

The response was so tumultuous and sincere, that, in reply, Sir Hugh was almost overcome when thanking them all for the reception given to the toast. He hoped, he said, before leaving the Air Service he would see that it was in a perfectly sound position.

## AVIATION IN PARLIAMENT

### Civil Aviation (Lord Weir's Committee)

LIEUT.-COM. KENWORTHY, in the House of Commons on June 14, asked the Secretary of State for Air when he received the Report of Lord Weir's Committee on Civil Aviation; whether it has been published; and what action is being taken on the findings?

Mr. Churchill: The Report of the Advisory Committee on Civil Aviation, of which Lord Weir is Chairman, is dated April 19, and has not yet been published. The recommendations of the Committee are at the present moment under consideration.

### German Aircraft

SIR F. HALL on June 15, asked the Secretary of State for Air if he can state approximately the total number of airships and aeroplanes possessed by Germany at the time of the Armistice; what portion of these have either been handed over to the Allies or destroyed under their supervision; and whether there is any provision in the Peace Treaty which would prevent Germany retaining part of her military aerial material for ostensibly civil purposes, and thus evading the main purpose of the Treaty?

Mr. Churchill: The answer to the first and second parts of my hon. and gallant friend's question is that the time of the Armistice Germany possessed approximately 16 airships and 18,500 aeroplanes, and that up to May 29, no airships or aeroplanes had been handed over to the Allies, but 700 aeroplanes and 3,000 aero. engines had been destroyed under Allied supervision. I would remind my hon. and gallant friend that Germany was under no obligation to destroy aircraft material until the ratification of the Peace Treaty. For various and sufficient reasons—the state of confusion owing to the revolution, etc.—the actual work of destruction was not commenced until May 3. The progress since that date has, I think, been satisfactory. With regard to the third part, Article 202 of the Peace Treaty provides that all aeronautical material which had been used or designed for warlike purposes shall be delivered to the Allies.

Sir F. Hall: Does my right hon. friend think that the obligations in the Treaty are being satisfactorily carried out with regard to the destruction of these aircraft? Does he recognise the great necessity, at all events to this country, to see that Germany is deprived of both aeroplanes and airships?

Mr. Pemberton-Billing: Is it not a fact that the Germans are manufacturing more aeroplanes than they have destroyed since the War; that they are manufacturing three aeroplanes to every one that is being built in this country?

Mr. Churchill: My information is exactly the opposite. My information is that 60 aeroplanes have been manufactured by the Germans during the same period that we have manufactured 300—on a comparable basis. It is very difficult for me to answer the question of the right hon. gentleman, for he wants me to give him an assurance, and it is not my duty to do so. Marshal Foch and the Inter-Allied Commission are the responsible authority for the disarmament of Germany. With all that that reserve implies I should say that I believe that the process is being carried out—I would not say punctually, I would not say willingly—but it is being carried out without undue obstruction, and will be fully completed.

Sir F. Hall: Will the right hon. gentleman be kind enough to communicate with the Inter-Allied Commission on the other side, and impress upon them the great necessity that steps should be taken to deprive the Germans of their aircraft as quickly as possible?

Mr. Churchill: Yes, I will.

### R.A.F. Officers' Swords

MR. C. PALMER asked the Secretary of State for Air whether, in view of the fact that it is not obligatory upon officers of the Royal Air Force to equip themselves with swords, but that it is obligatory for such officers to wear a sword on ceremonial occasions, he will suggest some method by which officers of moderate means can avoid the expense of purchasing a sword and yet be able to comply with ceremonial regulations?

Mr. Churchill: The wearing of swords on specified occasions is at once

the privilege and the duty of every officer in the service of the Crown who wears His Majesty's uniform, including the members of the Privy Council and the Corps Diplomatique. The suggestion in the question is that an exception should be made in the case of the Royal Air Force. I can see no good reason why any such distinction should be made.

Mr. Palmer: Is the right hon. gentleman aware that his colleague suggested that the purchase of this sword was not obligatory; therefore, I am asking how he can so manage that, while the officer will not possess a sword, he may be able to borrow one for ceremonial occasions?

Mr. Churchill: The purchase of a full-dress uniform is not obligatory at present upon the Royal Air Force, largely on account of the difficulty of clothing prices and so forth. But it is intended that a uniform shall be adopted by the Royal Air Force, and if it is adopted the use of the sword with it will be indispensable.

Mr. Palmer: What is the purpose of the sword—for clearing a way through the air, or what?

Mr. Churchill: I do not know. The officers on board the ships of His Majesty have not much use for their swords, but they have not been deprived of them. They have not been deprived of them under the modernising spirit. I do not see why the new Air Force should be placed on a different footing. So far as the action of the men and the officers in command is concerned, the Air Force have many duties on the ground, and it seems to be quite natural that they should be possessed of the sword as a weapon, as in the Navy, and more so in the Army.

### R.A.F. Transferred Flying Officers and Pay

MR. GLANVILLE on June 17 asked the Secretary of State for Air what rate of pay an officer in the Royal Air Force received who formerly held a commission as flight sub-lieutenant in the Royal Naval Air Service with seniority as from May, 1916, was transferred to the Royal Air Force when formed, and in August 1919 received a permanent commission as flying officer; and was he entitled to 25s. per day from that date as he had served more than two years with equivalent rank of lieutenant?

Mr. Churchill: A flight sub-lieutenant of the Royal Naval Air Service transferred to the Royal Air Force on April 1, 1918, would have been entitled to pay as a lieutenant of the flying branch at the rate of 12s. a day from that date (13s. from April 1, 1919) and, in addition, to flying pay of 8s. a day while engaged on duty which involved flying. Under the regulations then in force his service as a flight sub-lieutenant did not reckon for increase of pay as a lieutenant of the Royal Air Force. Under the new scheme of pay brought into effect from August 1, 1919, an officer's service as flight sub-lieutenant, R.N.A.S., and lieutenant, R.A.F., would be counted towards increments of pay as flying officer, and on receiving a permanent commission as such he would therefore be eligible for pay as flying officer "over two years," namely 25s. a day, if he had served for more than two years in the ranks named.

### A.A. Material at an Ingatestone Farm

SIR C. OMAN asked the Secretary of State for War whether it would be possible to remove the accumulation of anti-aircraft material now lying in a corner of Fremings Hall Farm, Ingatestone, Essex, the property of Wadham College, Oxford, as the wire fences protecting the material have become decayed, and the tenant's cattle have repeatedly escaped through the gaps and injured themselves among the deserted material; and whether the compensation promised to the tenant for the commandeering of this corner of his farm will ever be paid, none having been received up to date?

Mr. Churchill: I am informed that some anti-aircraft searchlight plant is stored in brick sheds at this farm, and that certain other stores, including some searchlight platforms, are lying outside the sheds. Steps have been taken by the Eastern Command to remove the other stores, but the Disposal Board has yet to sell the plant and platforms. The tenant has not yet made a claim for compensation, but it is understood that he proposes to do so in the course of a few days.

### More Entries for Antwerp

ITALY has now entered eighteen machines for the competitions at Antwerp next month, including eight military land machines, four civil machines and six water planes. Another new entry is a four-seater S.E.A. by the Franco-Rumania Co. The other entries, as already announced, are one each Morane, Breguet and S.E.A.

### The Leon-Morane Challenge Trophy

THE Aero Club of France has now awarded the Leon-Morane Challenge Trophy and 10,000 francs to Jean Casale, the first aviator to hold the height record for a year since the prize

was instituted on October 19, 1918. The stages of the contest were: May 9, 1919, Sadi Lecoq, 8,155 metres; May 19, 1919, Sadi Lecoq, 8,585 metres; May 28, 1919, Jean Casale, 9,125 metres; June 14, 1919, Jean Casale, 9,520 metres.

### Aerial Link between France and Italy

IN connection with the project to link Bordeaux with Genoa by air, an air service between Toulouse and Montpellier, the second stage in the journey, was inaugurated on June 16. The first stage from Bordeaux to Toulouse service was established some time ago.

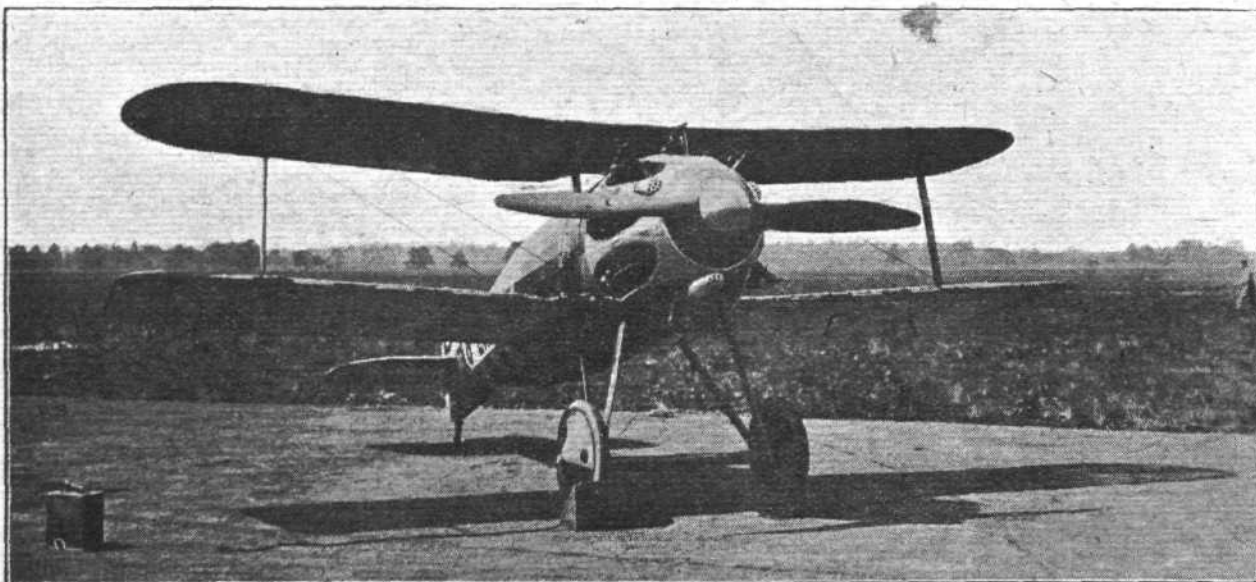
# AIRISMS FROM THE FOUR WINDS.

*Ark Royal*, the early seagoing 'plane mother-ship, is part of the "precautions" present with the Mediterranean Fleet and First Battle Squadron in the neighbourhood of the Bosphorus, in connection with the present activity of the Turkish Nationalist forces.

THAT the crew and others on the Russian ice-breaker *Solovei*, stranded since March in the ice without necessities, have now been rescued through the assistance of Britain and a Norwegian sister ice-breaker, the *Sviatogor*, is highly satisfactory. As there were two pilots with a brace of planes

to play a part in welcoming to these shores such folk as "Miss Mary Pickford" and her husband, Mr. Douglas Fairbanks. So it was accepted as just in the ordinary course, the dropping from a seaplane and an aeroplane of roses and messages of greeting, attached to tiny parachutes, for the popular film-folk, as the Red Star liner, *Lapland*, steamed up Southampton Water on Monday morning.

THERE appears to be some complication over those Newfoundland air-post stamps referred to recently in these



Three-quarter front view of the latest British Nieuport racing machine, fitted with A.B.C. "Dragonfly" motor, which has been undergoing speed trials at Martlesham Heath

on board the *Sviatogor*, which left Vardo on June 9, it would be still more satisfactory to us to learn that it was through the help of the aeroplanes in locating the stranded vessel that such a speedy rescue was effected.

As might have been anticipated, the aeroplane was sure

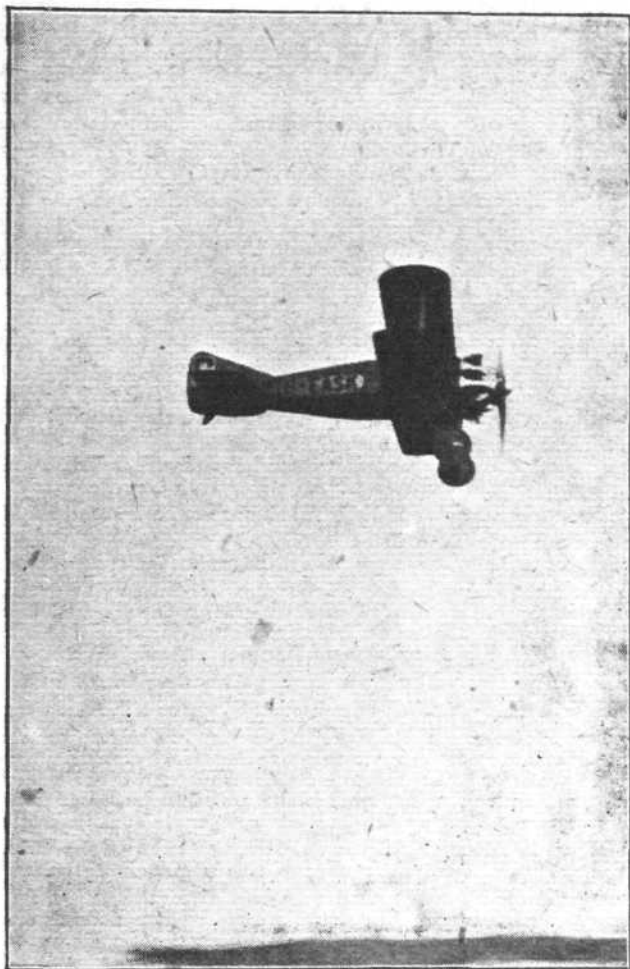
columns. Mr. Douglas B. Armstrong, of Streatham, has taken up the point raised, and writes a protest with reference to the letter, which we reproduced, from the late Postmaster-General of Newfoundland upon the subject, as follows:

"Permit me to say that some alleged Raynham-Martinsyde air-post stamps were extensively advertised and sold in



The latest British Nieuport racing machine, as seen from the side





**Flying at a speed of 166.5 miles per hour: The latest British Nieuport racing machine, eclipsing the British speed record by 5 m.p.h. at Martlesham last week**

London about twelve months ago by a firm of stamp dealers, and consisted of four denominations of contemporary Newfoundland postage stamps, overprinted '1st Atlantic Air-Post—Martinsyde, Raynham, Morgan.' At the same time, a statement was published in the firm's house organ to the effect that 'these were all used on the mail which was entrusted to the aviators of the Martinsyde machine, Messrs. Raynham and Morgan.' A registered envelope franked with these stamps and bearing the St. Johns postmark of May 17 was also exhibited on their premises. I am given to understand that the firm in question obtained the whole supply. In view of these facts, which I can substantiate, it is evident that examples of this unauthorised issue must have passed through the hands of the Newfoundland postal officials.

"Having regard to Mr. Robinson's remarks, it is apparent that a fraud has been perpetrated upon the stamp-collecting public in the issue of these stamps, and it would appear to be incumbent upon the Newfoundland Post Office to discover the source of its origin and bring the offenders to book."

*Apropos* aerial-post stamps, the new postage stamps of the Spanish air-mail will form a striking series to be added to the already quite considerable issues of this particular form of stickies. The designs are to symbolise the rise and progress of aerial navigation. They will shortly replace the present provisional issue overprinted "Correo Aereo," of which only 20,000 sets have been prepared. Three particular postage stamps are to be issued by the Spanish Post Office on the occasion of the seventh convention of the Universal Postal Union in Madrid in October.

Most people must have probably decided that the great 16-foot high *Daily Mail* poster on the Embankment south of the Thames at Blackfriars is *some* poster. A passenger in one of the Bat limousines used on the Instone Air Line has, anyway, sat up and taken notice of it, as the other day he wrote our contemporary saying, "from a height of 4,000 feet a *Daily Mail* poster was very clearly legible. We were somewhere over Putney at the time, and I should say that the poster was some five miles to the east and just south

of the river. It would be interesting to know the exact situation of this very prominent landmark."

What a prospect this opens up for advertisers of the future with visions!

PUBLIC economy just now is quite a prominent feature of the landscape. That aircraft can in certain directions assist towards that very desirable end is a fact, contrary to the opinion of so many that aviation is but another name for useless expenditure. And this was emphasised last week at a meeting of the newly-formed "League to Enforce Public Economy" at Essex Hall, when Earl Beauchamp, speaking on the subject, said, in regard to the Army expenditure, he thought the use of tanks and aeroplanes for the purpose of policing and keeping in order troublesome tribes, might be cheaper than employing large bodies of troops to that end.

D. G. D. writes as follows:—

"Your correspondent whose letter anent the Aero Show posters is reproduced in 'Airisms' this week, misses an important point with regard to the lady 'scratching her head with a banana.' This dashing pilot is about to commence, or has just concluded, a flight in a service machine, judging from the familiar target on the fuselage.

"May I suggest that the poster would be more effective if the target were replaced by the marking GE—WIZ, which sums up your correspondent's opinion (and mine) of the poster in one word?"

CONSIDERABLE feeling appears to have been raised in India regard to the flying of aircraft over the Towers of Silence, containing the dead bodies of members of the Parsee community. Sir Jamshedji Jeejibhoy, leader of the Parsee community, who has taken the matter up, in a letter to the Governor of Bombay, points out that "the religious customs of our community require that bodies of the dead should not be seen by non-Parsees. To observe that custom our Towers of Silence, where, according to our customs, bodies are exposed to the sun and to flesh-devouring birds, are surrounded by high walls. Now the introduction of aeroplanes and such other flying machines causes an anxiety among our people that curiosity may lead some persons flying in such machines to hover over our towers, and even to photograph the interior of our towers. If such a thing will happen, that will wound the religious feeling of our community."

The remedy for this possible sacrilege suggested by the writer is that the Towers should be declared a prohibited area.

The Governor, in sympathy with the request, has replied that he communicated with the headquarters of the Royal Air Force at Simla, and following that Air-Commodore Webb Bowen pointed out that low flying over any city in India was a civil offence. An order would, however, be issued regarding low flying over places of worship of all creeds. Further, the Commissioner of Police would, he said, issue a direct warning to pilots flying in Bombay to avoid flying low over the Towers of Silence.



**A British machine on a Polish Air Mail Service: Our photograph shows a Bristol Fighter, Rolls-Royce "Falcon" engine, being loaded with mail at Warsaw preparatory to its flight to Kieff. The pilot is Capt. S. G. McNaught Davis, R.A.F., and the passenger is Brig.-General A. Carton de Wiart, V.C., C.M.G., D.S.O.**

## BOOK REVIEWS

### A PRIMER OF AIR NAVIGATION

THANKS to the energetic work of a few far-seeing enthusiasts, the theory and practice of aerial navigation has been able to keep up more or less with the improvement of the aeroplane. Maj. H. E. Wimperis is one of those who have devoted their talents to this subject, and his "primer" will be certain of a warm welcome. He points out that prior to 1919 there was little occasion for long-distance air navigation; the subject has, however, become one which requires study, and the remarkable transatlantic and transcontinental flights of the last year or so have shown that the art of the sea navigator can, with suitable modifications, be applied to the air. The purpose of this primer of Maj. Wimperis is to show in simple language how this can best be done, and how when sea-going methods fail others can be devised to take their place. It is clear, however, that although the long experience and tradition of sea navigators forms a convenient basis on which to found air pilotage and navigation, the latter have individuality enough to substantiate a claim for separate treatment. At any rate, it makes for clearness that the subject should be treated freshly from the air stand-point unencumbered by purely marine technicalities, and Maj. Wimperis will earn the thanks of air navigators of the future for the pains he has taken to clear and ease a path for them through a somewhat intricate phase of their training. The various terms used are explained, the instruments which facilitate navigation are described and their functions outlined, and there are chapters on dead-reckoning navigation, directional wireless telegraphy and astronomical observations. The book is well illustrated, it is published by Constable and Co., Ltd., at 8s. 6d. net.

### PHOTOGRAPHY

To their series of handbooks on Common Commodities and Industries Sir Isaac Pitman and Sons, Ltd., have recently added one on Photography which, while it does not pretend to be a text-book for the subject, will be found a most practical guide by those who are thinking of taking up the art of "plate-fogging." It has been written by Mr. William Gamble, F.R.P.S., and that fact is sufficient to indicate that the information contained in it is both accurate and up to date. Mr. Gamble has nevertheless divested the book

as far as possible of detailed technicalities, so that his story of the many applications of photography to industry and the various photographic processes is not only instructive to those who really want to know, but also interesting to those who are merely curious as to "How it's done." He covers the whole gamut of photography, starting with the ordinary sort, and going on to deal with enlarging, colour works, astro- and micro-photography, cinema, block-making, photostat, stained glass, etc., finishing up with a chapter on photography in warfare, in which he tells of balloon and aeroplane photography—cameras, lenses, shutters—map-making, aerial cinema work, etc. The book is well illustrated, and bound in cloth costs 2s. 6d. net.

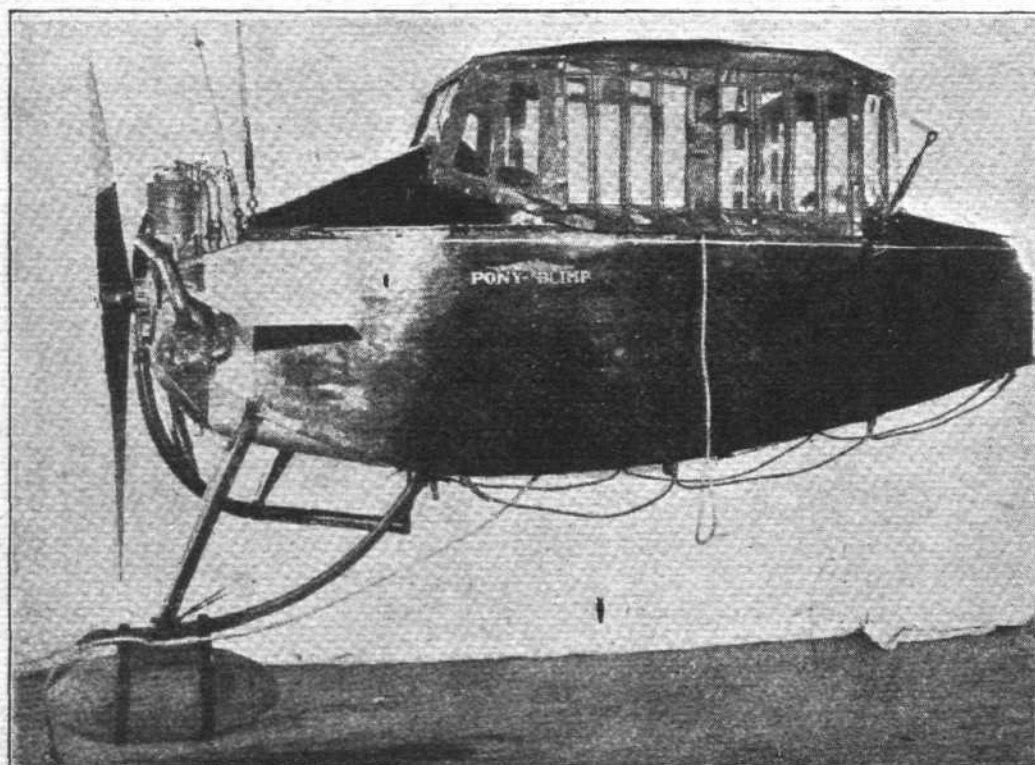
### THE MANAGEMENT PROBLEM

THIS volume recently added to the series of useful handbooks published by the Library Press, Ltd., is the outcome of the practical experience of its author, Mr. Edward T. Elbourne. Its scope can be gauged from the chapter headings: Co-ordination and Output—Labour Administration—Methods of Remuneration—Production Estimating—Production Control—On Manufacturing Policy. During the War the author was engaged, with a partner, in manufacturing guns and heavy shells, and they came to a recognition of the need for co-ordination as a practical working policy, which found expression in a Works Co-ordination Committee and in an official, who should have been called a co-ordination officer, though local circumstances caused the title Works Investigation Officer to be adopted. It was borne in upon them, too, that Labour Administration was no longer to be left to the care of foremen and timekeepers, but must be made one of the main issues of the management. In the chapter on "Production Estimating" the question of fixing premium and piecework rates is discussed from various points of view. This leads naturally to the chapter on "Production Control," in which the principles applicable to engineering work under manufacturing conditions are considered. In the last chapter attention is directed to several phases of the Board of Trade Departmental Committee's report on the position of the engineering trades after the War. The book has an appendix consisting of extracts from the report on the control of industry, published recently by the Federation of British Industries. The book, bound in cloth, is published at 4s. 6d.

### A Franco-Swiss Service

It is hoped to start within the next few weeks a regular aeroplane service between Paris and La Chaux-de-Fonds (west Swiss border) to connect with the present London to Paris service, reports *The Times* correspondent at Montreux.

He adds that the main object of this scheme is to transport watches to Paris and London, and thence to the United States. A special centre for Swiss watches has recently been opened in London, and it is expected that the new aeroplane service will be very successful on account of the high value but small bulk of the cargo.



The cabin-nacelle of the sporting model of the Goodyear "Pony Blimp," which was described in *FLIGHT* for April 15 last



# THE ROYAL AIR FORCE

London Gazette, June 15

**Permanent Commissions**

Flight Lieut. J. H. Porter (Medical) is granted a permanent commn. in the rank stated, with effect from May 17.

The notification in *Gazette* Aug. 1, 1919, appointing Lieut. C. R. W. Knight (A.) to a permanent commn. is cancelled.

**Short Service Commissions**

The following officers have been granted short service commns. in the ranks stated, with effect from the dates indicated. They will retain their seniority in the substantive rank last held by them prior to the grant of the short service commn., except that officers gazetted to a rank lower than their previous substantive rank will be placed at the head of the list of officers of the rank to which they are now gazetted and will retain seniority relative to each other in accordance with their previous position on the gradation list:—

Flight Lieut. (from Squad. Leader).—F. J. Powell, M.C. (A.); June 5.

Flight Lieut.—B. J. W. Brady, D.S.M. (A.); July 13.

Flying Officer (from Flight Lieut.).—R. A. Birkbeck, D.F.C. (A.); May 12 (substituted for *Gazette* June 8).

Flying Officers.—F. G. Gibbons, D.F.C. (A.); June 9. H. J. Horsey (A. and S.); June 12. L. W. Mawbey, M.C. (A.); June 11. S. E. Storrar (A.); June 7. M. L. T. Leroy, A.F.C. (A. and S.); June 1. R. Boog-Watson (Medical); June 7.

Observation Officer.—A. D. Rogers, A.F.C.; May 18 (substituted for *Gazette* June 8).

Flying Officer (from Pilot Officer).—L. C. Pharoah-Band (A.); June 9.

Observation Officer (from Pilot Officer).—J. Mitchell, D.S.O., D.F.C.; June 5. The notification in *Gazette* of Sept. 12, 1919, appointing Flying Officer H. J. Adkins (T.) to a short service commn. is cancelled.

**Permanent Commissions**

Observation Officer J. E. Kendrick, D.F.C., is placed on Half-pay List; May 15.

**Flying Branch**

Flight Lieut. H. S. Lees-Smith relinquishes the grading for pay and allowances as Squad. Leader on ceasing to be employed as Squad. Leader (A.) Aug. 27, 1919.

Sec. Lieuts. to be Lieuts.—D. J. Wilkes (since relinquished commn.); Oct. 5, 1918. L. W. Norman (since demobilised); Jan. 19, 1919. N. E. D. Hutchinson (since demobilised); May 17, 1919.

Pilot Officer I. D. Stewart to be Observer Officer; Nov. 6, 1919.

Pilot Officers to be Flying Officers.—G. Gorrill; Aug. 2, 1919. J. T. A. Lochner; Jan. 23 (since granted short service commn.). J. I. Morgan; March 30. A. Ellis; April 3. R. G. Duncan; April 5.

Flying Officer Alan-Dix-Lewis (Lieut., Midd'x R.) relinquishes his temp. R.A.F. commn. on return to Army duty; May 17. (Substituted for *Gazette*, June 4.) Flying Officer J. W. E. Jamieson (Capt., Ind. Army) relinquishes his temp. R.A.F. commn. on return to Ind. Army; May 18.

(Then follow the names of 8 officers who are transf'd. to the Unemployed List under various dates.)

Lieut. R. Tyack resigns his commn.; April 26, 1919. (Substituted for *Gazette* July 15, 1919.) Sec. Lieut. A. W. Johnston relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank; Jan. 31. Sec. Lieut. (Hon. Lieut.) S. R. Grover relinquishes his commn.; April 12, 1919. (Substituted for *Gazette* May 2, 1919.) The Christian names of Sec. Lieut. David Joseph Wilkes are as now described, and not as in *Gazette* May 21. The Christian names of Sec. Lieut. Ronald Charles Hill (Lieut., North'd Fus.) are as now described, and not as in *Gazette* June 13, 1919. The notifications in *Gazette* May 25, concerning Lieut. J. F. Blick, *Gazette* July 15, 1919, concerning Lieut. J. Turner, are cancelled.

**Administrative Branch**

Sec. Lieut. (Hon. Lieut.) R. O'Brien to be Lieut. (since relinquished commn.); April 25, 1918.

Pilot Officers to be Flying Officers.—A. H. Betteridge (since demobilised); Aug. 7, 1919. S. A. Knight (since demobilised); May 5. C. St. J. Vaughan; May 18.

Squad. Leader H. V. Such (Staff Paymr., R.N.R.) relinquishes his temp. R.A.F. commn. on return to Naval duty; July 1, 1918. Flight Lieut. (Hon. Squad. Leader) F. W. A. Wells, M.C. (Maj., Ind. Army) relinquishes his temp. R.A.F. commn. on return to Indian Army; Nov. 23, 1918.

(Then follow the names of 6 officers who are transf'd. to the Unemployed List under various dates.)

The notification in *Gazette* Feb. 6, concerning Sec. Lieut. W. A. Johnston is cancelled.

**Technical Branch**

Sec. Lieut. W. Nettleship to be Lieut. without pay and allowances of that rank; June 1, 1919. Pilot Officer C. H. Johnson to be Flying Officer; Oct. 1, 1919.

(Then follow the names of 7 officers who are transf'd. to the Unemployed List under various dates.)

The notifications in *Gazette* May 23, 1919, concerning Sec. Lieut. A. Hill, and *Gazette* May 4 concerning Sec. Lieut. G. Hill are cancelled.

**Medical Branch**

Two officers transf'd. to the Unemployed List. Lieut. C. H. Vernon relinquishes his commn.; May 29, 1919 (substituted for *Gazette* July 29, 1919).

**Dental Branch**

Two officers transf'd. to the Unemployed List.

**Memoranda**

Sec. Lieut. (Hon. Lieut.) W. A. Berry (S.O.) to be Lieut. (S.O.); April 2, 1918.

(Then follow the names of 37 Cadets granted hon. commns. as Sec. Lieuts.) The following Prob. Flight Officers are granted hon. commns. as Sec. Lieuts.—J. V. Prestwick; Jan. 9, 1919. E. A. Fisher; Feb. 26, 1919. R. St. J. Sheppard; March 7, 1919. A. H. Lawrence; March 8, 1919. R. V. Nisbet; March 12, 1919. J. E. G. Moody; March 25, 1919. A. Gardner; April 8, 1919. H. G. Lock; Oct. 11, 1919. A. J. Plummer; Dec. 19, 1919.

The following Prob. Flight Officers are granted temp. commns. as Sec. Lieuts., with effect from Feb. 15, 1919, and relinquish such commns. with permission to retain the rank.—K. E. Bensusan, H. Oakley, R. G. Stephens. Squad. Leader K. G. S. Hatfield (Capt., R.E.) relinquishes his temp. R.A.F. commn. on return to Army duty; May 15, 1918.

London Gazette, June 18

**Short Service Commissions**

Flying Officer E. R. Longhurst (A. and S.) relinquishes his short service commn. on account of ill-health contracted in the service, and is permitted to retain his rank; June 19.

**Flying Branch**

The following Army officers are granted temp. commns., on re-seconding for a period of two years, with effect from the dates indicated:—Flying Officer G. B. Pershouse (A.) (Lieut., N. Staffs. R.); June 12. Flying Officer W. R. Oulton, A.F.C. (A.) (Lieut., Ches. R.); June 14.

(Then follow the names of 15 officers who are transf'd. to the Unemployed List under various dates.)

The following Lieuts. relinquish their commns. on account of ill-health and are permitted to retain their rank:—J. B. Cockin (caused by wounds); June 12. G. G. A. Martin (contracted on active service); June 19.

Lieut. S. J. Clinch, D.C.M. (Sec. Lieut., Ex. R., employed), relinquishes his temp. R.A.F. commn. on retiring with gratuity, and is permitted to retain his rank; July 1, 1919 (substituted for notification in the *Gazette* of Sept. 2, 1919).

Sec. Lieut. T. Irtuganoff resigns his temp. commn. with effect from the day following the termination of the standardised voyage (Canada).

**Administrative Branch**

Lieut. J. C. Kinmond is graded for purposes of pay and allowances as Capt. while employed as Capt.; from June 5, 1919, to Oct. 25, 1919.

Squad. Leader A. R. Stanley-Clarke, M.C. (Capt., Dorset R.), relinquishes his temp. R.A.F. commn. on return to Army duty; Feb. 4.

(Then follow the names of 4 officers who are transf'd. to the Unemployed List under various dates.)

**Technical Branch**

Maj. D. A. B. Morle is granted a temp. hon. commn. as Squad. Leader whilst re-employed; June 15. Lieut. (actg. Capt.) W. E. Phillips to be actg. Maj. whilst employed as Maj., Grade (A.); Dec. 23, 1918. Sec. Lieut. C. W. Grey is granted a temp. commn. as Flying Officer whilst re-employed; June 15.

The following are granted temp. commns. as Flying Officers:—G. K. Deakin and R. W. R. Rankin (subject to physical fitness); June 15.

Flight Lieut. A. Crook, O.B.E. (Maj., Gen. List) (Maj., Qtr.-Mtr., Ex. R., employed), relinquishes his R.A.F. commn. on return to Army duty; June 9. Flying Officer H. C. S. Bullock, M.B.E., M.M. (Sec. Lieut., Ex. R., employed), relinquishes his temp. R.A.F. commn. on retirement from the Army, and is permitted to retain his rank (substituted for notifications in *Gazettes* of Sept. 18, 1919, and Feb. 6).

(Then follow the names of 6 officers who are transf'd. to the Unemployed List under various dates.)

Lieut. W. N. Doble relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank; June 18. The surname of Sec. Lieut. K. J. Adams is as now described, and not "Adam" as stated in *Gazettes* of June 21, 1918 (page 7,328), Sept. 27, 1918 (page 11,457), and May 25 (page 5,848). The notification in *Gazette* of March 2 concerning Maj. (actg. Lieut.-Col.) J. G. Bayes is cancelled.

**Medical Branch**

Two officers transf'd. to the Unemployed List.

**Memoranda**

(Then follows the name of one Overseas Cadet granted temp. commn. as Sec. Lieut.)

The following Proby. Flight Officers are granted hon. commns. as Sec. Lieuts.—E. M. Heys; Jan. 31, 1919. L. Bailey; March 13, 1919. W. A. Taylor; April 11, 1919. N. A. Pike; March 10.

Capt. R. B. C. M. T. de Poix, O.B.E., is transf'd. to the Unemployed List from (S.O.); March 24, 1919. Sec. Lieut. R. Brown relinquishes his commn., and is permitted to retain his rank; March 7, 1919. The notification in *Gazette* of Jan. 10, 1919, concerning Lieut. (actg. Capt.) W. E. Phillips is cancelled.

(Then follow the names of 29 Cadets granted hon. commns. as Sec. Lieuts.)

**A U.S. Airship Passenger Service**

HAVING purchased a 260-ft. dirigible from France, the Goodyear Tire Co. is proposing to run a regular airship service for passengers and goods between Akron, O., and Detroit, Mich. It is stated that the airship, which will have accommodation for thirty passengers, will have a speed of 55 miles an hour.

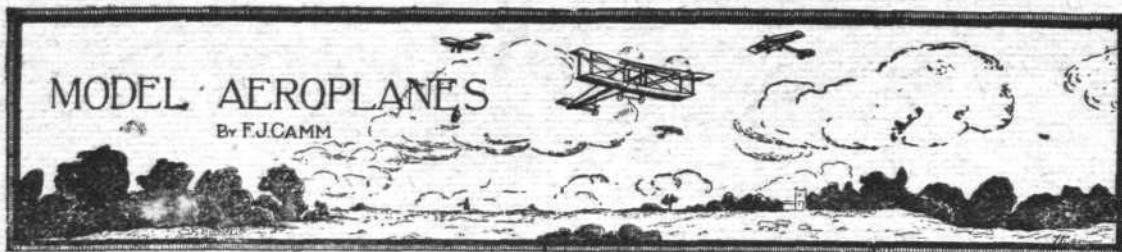
**A Dirigible Hangar on Pacific Coast**

AN arrangement has been come to between the U.S. Navy and War Departments for the erection of a permanent hangar for rigid dirigibles on North Island, San Diego, Cal., although the commencement of the work may be delayed

until sanction can be obtained for the expenditure. It is felt imperative that there should be a hangar for rigid dirigibles on each coast.

**Junkers to be Built in America**

FROM advertisements appearing in U.S. papers, it appears that the Junkers all-metal enclosed monoplane is to be built in America. There it will be known as the J.L.6, and its producers will be the J.L. Aircraft Corporation (of which J. M. Larsen is President), which has secured the American patents from Dr. Hugo Junkers. It is claimed that the machine will carry six to eight passengers at an average speed of 112 m.p.h. with a 160 h.p. engine.



NOTE.—All communications should be addressed to the Model Editor

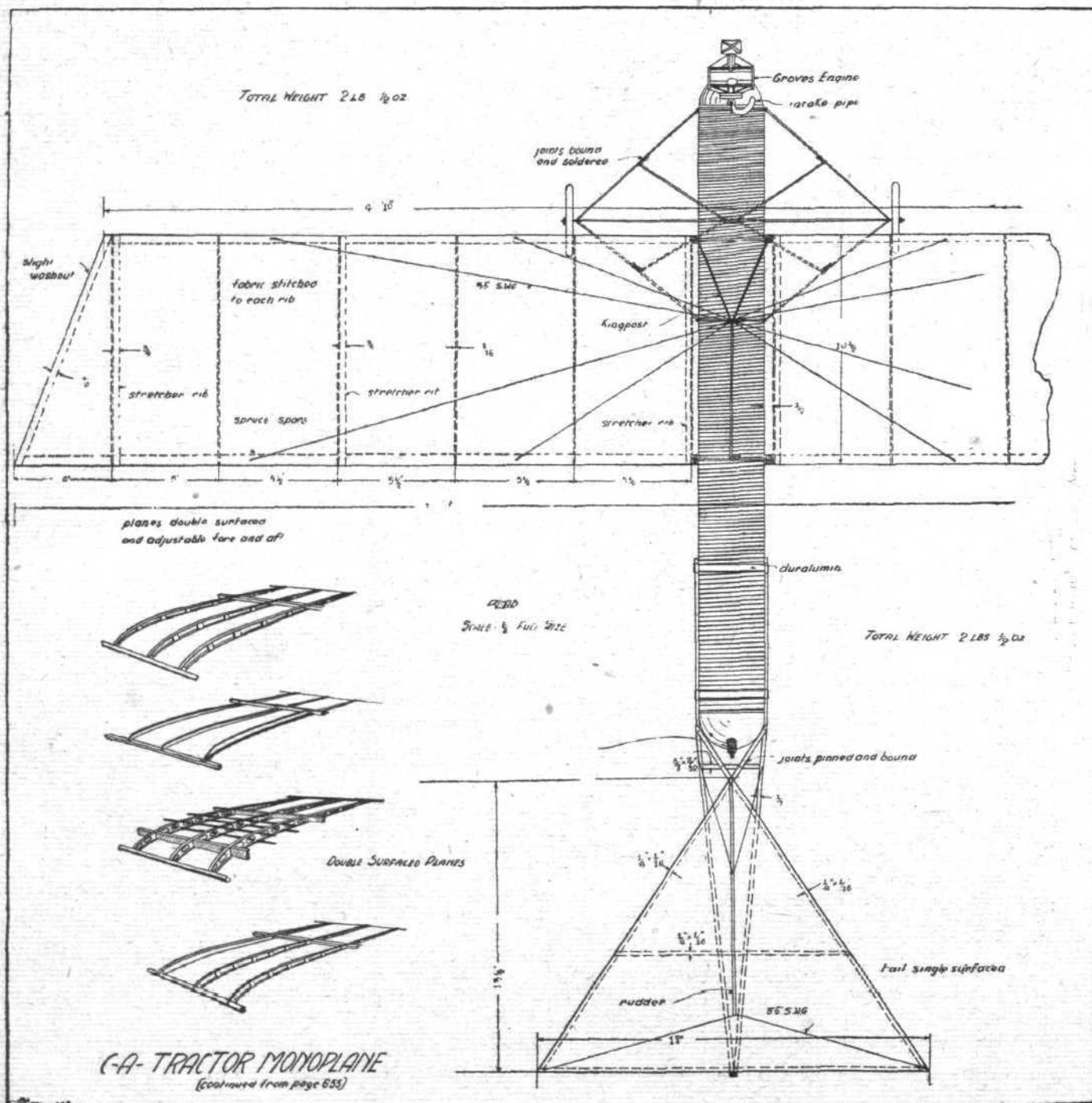
### A Compressed-Air Driven Model

I show this week a plan view of the compressed-air driven model which was the subject of my last article. The total weight of the machine is just over 2 lbs., but, even so, the power is ample to raise the machine from the ground. The model gets off after a run of 6 feet, and climbs to a height of about 30 feet. It is also quite stable, and there has been no trouble in this respect. I found that duration of flight was roughly half the number of pump strokes up to a point (100 strokes), after which no particular ratio exists. I certainly think the plant is capable of giving a duration of well over 60 secs. to a machine.

*The Tail and Rudder.*—The tail is carried on two outriggers secured by duralumin straps to the container. I think the

view here given will make the construction of this unit abundantly clear. Simple featherweight construction has been adopted to enable the centre of gravity to be kept as forward as possible. I kept the centre of thrust high, so that when the thrust decreases from the initial burst the machine would not have a tendency to dive; this, of course, owing to the main plane being well forward to overcome the "nose down" effect of having the thrust high.

The rudder is merely a simple fabric covered framework, retained in the vertical by means of piano-wire bracing. The main planes, anent which some information was given last week, should be carefully made up on full-size lines. I show some methods of plane construction which could also be embodied. Such construction, while tedious, amply repays one. I think that, from a practical point of view,





double-surfaced wings are essential for large machines, as one cannot obtain a reasonable section by double-surfacing ordinarily constructed planes.

(To be Continued)

### The Forthcoming Aero Show at Olympia

We wish to get into touch, at once, with those readers wishing to exhibit models at the forthcoming show at Olympia. It has already been announced in *FLIGHT* that the Royal Aero Club is organising the Inventions and Model Section, and has consented to allot a certain space, free to exhibitors, for this purpose. While it is not desired to show any machines of the freak variety, it is not necessary to show a complete machine. Any machine, or portion thereof, that embodies new ideas, or ideas that can reasonably be termed *novel* or *inventions*, is what is required. Flying sticks and models having no direct bearing on full-size practice are not required. It is the *inventor*, the man with something new we wish to see exhibiting. One fears that, in the earlier model shows, the freak variety of machine was very much in evidence, and while they may not have brought discredit on the movement, they did little, if anything, to create or sustain interest permanently.

Provincial members need not be precluded from entering on the score of distance. If they will send the machine to me, I shall be glad to arrange it in the show, and also to return it thereafter. Owing to the proximity to the opening of the show, it is necessary that any desirous of exhibiting should let us know without delay; a card will do, stating exactly what it is proposed to exhibit. New wing-sections, improvements in airscrews, new designs of machine or new arrangements of components are what is required. Please make a point of letting us know early, so that we may allocate space.

### Aero Models and Research Club

FROM Mr. C. Burchell, the hon. sec., we have received the following report of the activities of this club since Easter:—

"It has been difficult to keep in touch with members owing mostly to the fact that they are so widely scattered. However, enthusiasm has been raised considerably by the advent of some fine models which have put up some splendid flights. Chief amongst these must be mentioned Mr. E. Coleman's deep spur model which was flying most successfully on the Saturday before Whitsun. This is a fine specimen of woodcraft. The spar or rather body being  $1\frac{1}{2}$  in. deep at the deepest part, and looking while in the air like the real thing. The prop (a 12-in. 'Sebur' type) was finished off with a neat aluminium spinner. The span is 3 ft. 6 in., and has wire wing tips; the same for tail and fin. Another novelty, too, is the chassis which is formed of a reinforced strut with bracing wires back and front. Mr. Colehatch, too, had a smart little machine which was putting up some fine altitude flights. Mr. Whelpton was making some fine flights. An informal competition was organised on the spot for a pair of propellers presented by Messrs. A. E. Jones, and led to a ding-dong battle between four of the members, Messrs. Burchell and Coleman standing out; Mr. Colehatch finally winning with a total for three flights of 102 secs. The club rule of 2 hand-launched and one R.O.G. flight was followed. Mr. Walkereline was a very close runner-up with 83 secs., only failing with the R.O.G. which was only 3 secs. This is a thing which members will have to improve on as it is not an easy test for a machine to get off rough ground. Keen interest was taken in the contest, both by members and spectators, of which there were a large number.

"The Easter flying was something of a fiasco owing to the weather being so unsettled, and the competition was therefore held over till better times. Great interest has been shown in Mr. Jackson's models—two of these have been out lately, one a little biplane only 2 ft. span with a body complete in every detail, only 18 in. long, and with a geared motor. Some flights of at least 100 yds. were made by this small machine at a height sometimes of quite 20 ft. The 'Gem' is a monoplane, Junker type, with a double surface, which put up what must be a record for this type (35 secs.), and landing in a tree! More will be heard of this model as it was by no means run out when it was 'treed.' Most of the members are concentrating on this type including some rather large ones of fair weight. The Junker section wing (somewhat modified for model purposes), being mostly used. It is good to see modellers going more deeply into this subject of wing sections. It is hoped to publish some interesting results before long."

### Illinois Model Aero Club News The Year's Work

We have received the following from Mr. B. Pond, secretary of the Illinois U.S.A. Club:—

"The summer was marked by a world's record passing

from Mr. Pease to Mr. Sweitzer, who made a flight R.O.G. of 4,029 ft. The usual annual series of contests for the handsome Laird Weaver Trophy was won by Mr. Wm. Sweitzer. Mr. R. Jaros won the amateur duration prize. The prize for amateur distance was won by Mr. J. Kroviak. The famed Villard Trophy, muchly polished and lacquered is now a permanent part of the I.M.A.C. collection of trophies. The Aerial Age Medals were all won by I.M.A.C. members, and medals formed an important part of the time-keeping equipment of the lucky ones.

"The annual scale model contest was held December 5, 1919. Among the models entered were an 'Ansaldo 1', an S.E. 5 and an Albatross C.V. The model making the best duration flight was given 50 per cent. and the other models, in proportion. The best workmanship was given 25 per cent. and the others in proportion. The model constructed most nearly like the drawing or plan of the original machine, which the contestant was required to furnish, received 25 per cent. and the others proportionately. S.E. 5 took first in workmanship and following the original design, the 'Albatross' flew longest, but the 'Ansaldo 1'—judged a close second in all three characteristics—won a handsomely engraved shield given by Mr. Brock by having the highest average for the three points considered.

"A big boost was given by the Chicago Aero Show, where the models created more of a sensation than the big machines. Members of the I.M.A.C. kept slow flying indoor tractor models circling in the air above the crowds most of the time during the show. The outdoor models and the scale models were hung around above the Club's booth and a large case of accessories of all sorts stood across the booth.

"A series of indoor contests for 10 in. R.O.G. duration machines, with two prizes for each contest, was held from January to April. Along with these contests a series of lectures was given on model designing by many old flyers.

"With many of the old members gone, the success of the club during a very hard year is nothing short of remarkable. The club remains unchallenged as the foremost model club in the country.

"All contests except the hydro and scale model contests will be held at Ashburn Flying Field. The hydro contests will be held at Lake Calumet and the scale model contest will be held indoors.

"Five contestants are necessary in order to hold a contest. Three official flights will be given each contestant.

"A first and second prize will be given at contest No. IV, and other prizes donated will be divided among remaining contestants."

### A Club for Golder's Green

A MOVE is being made with the object of starting a model aeroplane club at Golder's Green, one of the leading spirits being Mr. C. S. Mitchell, who originated the Ascham Model Aero Club. Mr. A. E. Mayers, 12, The Meadow, Golder's Green, N.W. 4, will be glad to hear from anyone interested with a view to arranging for a meeting to discuss the formation of club.

### (Replies to Correspondents)

R. C. (Bradford).—(1) It has been tried and found useless. (2) The French Government are now experimenting with a machine which has given promising results. "The Helicopter Flying Machine," by J. R. Porter, might provide some information of service to you.

C. V. (Liverpool).—Sorry, we have no particulars of the machine you mention. No doubt, if you wrote to the company mentioned at their works, Hendon, they would supply the desired information.

G. H. (Dumfriesshire).—As the matter would hardly be of general interest, we shall be glad to let you have particulars through the post.

A.S. (Birmingham).—There is really nothing new in your screw, although it is impossible to give a precise opinion in the absence of more definite information. During the past six years I have written much about model airscrews, and the chapter in my book will doubtless explain the matter for you. I personally would not attach any importance to the thrust you obtain, which is obtainable from any screw if sufficient power is applied; the screw duration (5 secs.), too, is not of practical use. If you will furnish a pencil drawing of the screw I shall then be pleased to go more deeply into the matter.

A. W. K. (Leatherhead).—Many thanks for your letter; I'll do my best to carry out your suggestions. See reply to W. C. O. below.

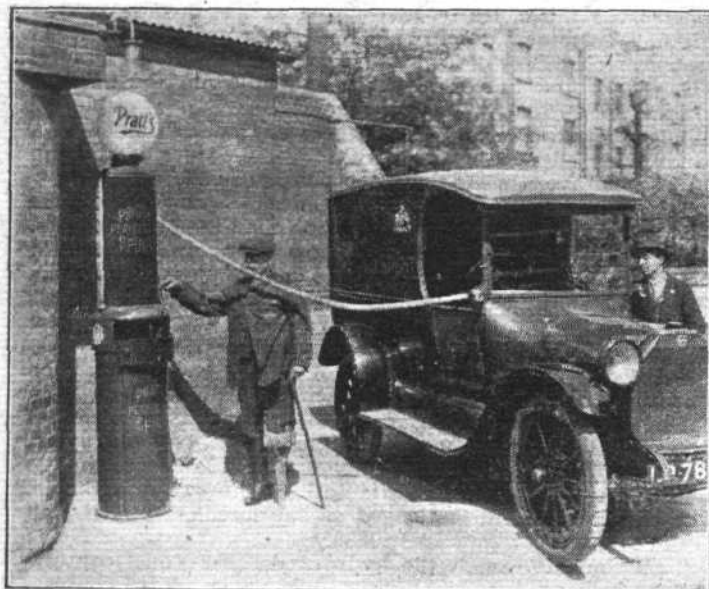
F. K. (Ramsey).—I replied direct to your letter.

W. C. O. (Shoreham).—Your address has been forwarded to Mr. H. H. Groves.



## SIDEWINDS

THE Gilbert and Barker self-measuring pump installation, illustrated herewith in operation at a Forest Hill garage, delivers petrol direct from a buried small bulk storage tank containing up to 100,000 gallons. This pump, which has been adopted by the Anglo-American Oil Co., Ltd., for the delivery of their "Pratt's" motor-spirit, is made in two sizes, respectively delivering 5 gals. and 1 gal. at full pump-stroke (the larger one delivering 25 gals. in 80 secs. and the smaller 5 gals. per minute). It is operated by a crank-handle and spur gear engaging a rack on the plunger rod. At the top of its stroke the plunger rod, through trip-levers, operates one dial to show the amount of petrol being delivered,



The Gilbert and Barker self-measuring petrol pump

for the purchaser's view, and another meter to register the amount that has passed through the pump from the tank, for the garage owner's information. Lesser deliveries are regulated by stops mounted on a threaded standard bolt parallel with the plunger rack, these stops being swung over to engage the rack and arrest the stroke at the predetermined measure, the finest adjustment being made by slightly rotating the threaded bolt, the nut of which is then locked and sealed. The encasement of this mechanism is surmounted by a lamp-standard, serving as a sign and to afford sufficient light for night-use. This pump appears to be an essential installation for all garages and aero stations.

A STRIKING tribute to the value and efficiency of Barimar's repair services was recently given by a well-known Scottish mill owner who, possessing a Schneider car with badly pitted cylinders, leaking radiator, fractured chassis frame and wings badly damaged, had the car driven 860 miles to and from London in order that Barimar might put through the necessary repairs, since Northern engineering firms felt unable to guarantee reasonably good results. In acting thus the Scottish mill owner was largely guided by an R.A.F. officer friend, whose experience of Barimar repairs, in and out of the service, enabled him to bear testimony to Barimar's efficiency. The car left Scotland on Saturday at 2.30 p.m., arrived in London on Sunday, was driven to Barimar's London Works on Monday, and the whole of the repairs were completed by the following Friday, and the return journey to Scotland was made by Sunday. On its way down the car passed through some of the very largest engineering centres in Britain, and the total charges for the repairs, including the running costs, were considerably less than the prices of new parts, and the car when repaired was quite as effective as when new.

MESSRS. VANDERVELL AND CO. LTD., the manufacturers of the C.A.V. electrical productions, have just completed the addition of their new coil ignition system to the lighting and starting installation already fitted to His Majesty's 57 h.p. Daimler. This company were recently the recipients of the Royal Warrant, their equipment being fitted to the whole of the Royal fleet of automobiles.

## COMPANY MATTERS

### Crossley Motors, Ltd.

AT extraordinary meetings to be held on June 28 and July 13 resolutions will be put forward by the directors for increasing the capital from £600,000 to £1,250,000, capitalising part of the reserve fund, increasing the directors' remuneration.

It is proposed to deal with £525,000 of the additional £625,000 of the increased capital as follows:—

Issue of 25,000 ordinary shares to shareholders in A. V. Roe and Co. Issue at par to this company's shareholders, with rights of renunciation attached, of one new ordinary share for every two shares held, absorbing 312,500 new shares. Issue to all shareholders of one ordinary share as fully paid for every five shares held, absorbing 187,500 new shares, by capitalising part of the reserves. The directors state that Crossley Bros. have signified their intention to take their full proportion of the new issue. The remuneration of the Chairman is to be raised to £1,000 per annum, and that of the other directors to £300 per annum, both free of income-tax, and from November 1, 1919.

## AERONAUTICAL PATENTS PUBLISHED

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m. = motors

### APPLIED FOR IN 1916

The numbers in brackets are those under which the Specification will be printed and abridged, etc.

Published June 24, 1920

6,693. R. ALLEN. Gun mountings for aircraft. (143,578.)

### APPLIED FOR IN 1917

The numbers in brackets are those under which the Specification will be printed and abridged, etc.

Published June 24, 1920

14,796. E. R. CLARKE. Directive wireless telegraphy. (143,580.)

### APPLIED FOR IN 1919

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

Published June 24, 1920

- 1,474. J. W. RAPP. Airplane ribs. (122,649.)
- 2,057. J. H. COTTON. Aerial craft. (143,591.)
- 4,601. PARNALL AND SONS and H. BOLAS. Ailerons, elevators and rudders. (143,616.)
- 5,029. ALPHABERO ENGINES, LTD., and P. T. HOUSTON. I.C. engines. (143,640.)
- 14,358. H. J. FINER. Apparatus for fire-control of ground batteries from aircraft. (143,727.)
- 14,687. A. TEBALDI. Radiators. (128,214.)
- 16,576. BOULTON AND PAUL, LTD., and J. D. NORTH. I.C. engines. (143,745.)
- 23,291. E. M. GRIFFITHS. Apparatus for indicating flying angle. (143,780.)

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